NYASALAND PROTECTORATE

Annual Medical Report

ON THE

HEALTH AND SANITARY CONDITION

OF THE

NYASALAND PROTECTORATE

FOR THE

YEAR ENDED 31st DECEMBER, 1915.

PRINTED BY
THE GOVERNMENT PRINTER, ZOMBA, NYASALAND.
1916.
—7310—

OFFICE OF THE PRINCIPAL MEDICAL OFFICER,
ZOMBA,
NYASALAND PROTECTORATE,
14th October, 1916.

Sir,

I have the honour to submit, for the information of his Excellency the Governor and for transmission to the Right Honourable the Secretary of State, an abbreviated Medical Report on the Health and Sanitary Condition of the Nyasaland Protectorate for the Year ending the 31st of December, 1915, together with the Returns, &c. appended thereto.

I have the honour to be,
Sir,
Your obedient servant,

H. HEARSEY,
Principal Medical Officer.

To

THE HON'BLE THE CHIEF SECRETARY,
ZOMBA.

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NYASALAND PROTECTORATE.

ANNUAL MEDICAL REPORT

FOR THE YEAR ENDED 31st DECEMBER, 1915

I. ADMINISTRATIVE.

STAFF.

The Medical Staff comprised :—

The Principal Medical Officer.

11 Medical Officers.

The Nursing Staff consisted of :—

The Matron.

4 Nursing Sisters.

2 Probationers.

P. M. O.'s Office :—One Clerk.

Subordinate Staff :—1 Second Class Senior Sub-Assistant Surgeon.

3 First Class Sub-Assistant Surgeons.

Of these, one is at present in civil employment, and three are attached to Troops

Principal Apointments and Changes during the Year.

New appointments :—

Nursing Sister M. Farrow, in place of Nursing Sister B. C. Empson, resigned.

Leave :—No member of the staff proceeded on leave during the year.

Invaliding :—

Dr. Morgan, and Nursing Sister B. C. Empson, were invalided and left for England on the 20th April.

Resignations :—

Dr. P. C. Conran, with effect from the 18th March.

Dr. J. G. Morgan, with effect from the 12th September.

Deaths :—Nil.

Disposition of the Medical Staff in 1915

A. Medical Staff.

I. ON CIVIL AND MILITARY DUTY.

(a). At Zomba.

Dr. H. Hearsey.	Dr. A. G. Eldred.

(b). At Fort Johnston.
Dr. J. E. S. Old.

II. ON MILITARY DUTY AT KARONGA.

Dr. H. Stannus.	Dr. G. M. Sanderson.
Dr. N. M. Leys.	Dr. R. Bury.

III. ON CIVIL DUTY.

(a). At Port Herald.
Dr. R. Drummond.

(b). At Blantyre.
Dr. A. H. Barclay.

IV. ON SPECIAL DUTY AT KASU.

Dr. J. B. Davey, engaged on Sleeping Sickness investigations in the Dowa district.

B. Nursing Staff.

I. ON CIVIL AND MILITARY DUTY.

(a). At Zomba
Miss M. Farrow.

(b). At Fort Johnston.
Miss. M. Gittins.

II. ON MILITARY DUTY AT KARONGA.

Miss. R. Paterson.	Miss. A. A. Pallot.

C. Sub-Assistant Surgeons.

I. ON CIVIL AND MILITARY DUTY AT ZOMBA

S. A. S. Varyam Singh.

II. ON MILITARY DUTY AT KARONGA.

Senior S. A. S. Bir Singh.	S. A. S. Hira Singh.

S. A. S. Kishen Singh.

TABLE I. MEDICAL STAFF.

Principal Medical Officer: H. Hearsey.

Medical Officers:

A. H. Barclay.
J. E. S. Old.
J. B. Davey
H. S. Stannus.
N. M. Leys.
A. G. Eldred.
G. M. Sanderson.
R. Drummond.
R. Bury.
J. G. Morgan (Resigned).
P. C. Conran (Resigned)

NURSING STAFF.

Matron: R. Paterson.

Nursing Sisters:

A. M. Tadman.
A. A Pallot.
M. Gittins.
M. Farrow.

PROBATIONERS:

E. A. Engelbach.
A. M. Hayter.

SUB-ASSISTANT SURGEONS.

Senior S. A. S. Bir Singh.
S. A. S. Varyam Singh.
S. A. S. Hira Singh.
S. A. S. Kishen Singh.

TABLE II. FINANCIAL RETURN.

The estimated expenditure of the Medical Department for the year 1915-16 was as follows:—

Total expenditure on personal emoluments	£8,130.
,, ,, ,, other charges	3,389.
Total	£11,519.

It is too early yet to state what the actual expenditure during the year 1915-16 has amounted to, but substantial savings are anticipated under the votes for Personal Emoluments, Travelling, Passages, and Sleeping Sickness and other investigations.

Revenue: As in previous years this may be estimated at about £50, being derived from hospital fees and the sale of medical stores.

PUBLIC HEALTH.

(A). GENERAL REMARKS.

The public health during the year under report cannot be said to have been altogether satisfactory.

An epidemic of small-pox, the first during the past six years, has existed in the Lilongwe, and to a lesser extent in the contiguous Dowa district.

The spread of the disease in these two districts has entirely been due to the difficulty that has been experienced in preventing natives from infected villages visiting their relatives and friends in uninfected areas.

This difficulty has recently been overcome by legislation, which makes the movements of natives from prohibited areas punishable.

Sleeping Sickness investigations were confined entirely to the Proclaimed Area in the Dowa district during the year under review, a total of 29 cases having been recorded.

Of these, 25 were notified from the Sleeping Sickness Area in the Dowa district, the remaining 4 having been diagnosed among natives presenting themselves for treatment.

During five years of continuous investigations in the Sleeping Sickness Area, 23 cases were diagnosed in 1914, 49 in 1913, 45 in 1912, and 35 in 1911; in 1915, as already stated, 25 cases were reported from the Area.

It is evident from these figures that though the disease is endemic in this locality, it has shown no signs during the past five years of close and continuous observation of assuming epidemic proportions; and this in itself is a very reassuring circumstance.

From the published reports of the Entomologist, whose investigations on tsetse flies have only recently terminated in consequence of his transfer to British East Africa, it is pleasing to record that the question of the breeding places of these flies has been satisfactorily determined; and the knowledge gleaned in other directions, such as the discovery of certain predaceous enemies and parasites of tsetse flies, indicates an advance in the study of the life-history of these flies which it is hoped may ultimately be capable of being turned to practical account.

I. GENERAL DISEASES.

Rheumatism, muscular rheumatism, myalgia, myositis and fibro-myositis formed the bulk of the cases under this head.

2. COMMUNICABLE DISEASES.

(1). Mosquito or Insect-borne.

Malaria.—There were 621 cases of malaria, as compared with 729 in the previous, and 757 in the preceeding year. There was no fatal case recorded.

Blackwater Fever.—Only 2 cases came under treatment during the year, as against 3 in 1914, and 7 in 1913.

One of these cases occurred at Karonga, at the north end of Lake Nyasa; the other at Port Herald, at the southern end of the Protectorate. Both the cases recovered As to seasonal incidence, the time of their occurrence was the dry season.

Trypanosomiasis.—The total number of cases recorded during the year was 29; of these 17 were males and 12 females.

Dr. Davey, the Medical Officer in charge of Sleeping Sickness investigations in the Proclaimed Area of the Dowa district, reported 25 cases; the remaining four were diagnosed among natives presenting themselves for treatment.

Of these four cases, two were notified by Dr. Wigan of the Universities Mission, one each from the Marimba and South Nyasa districts; one by Dr. Prentice of the United Free Church of Scotland Mission, from the Marimba district; and one by Dr. Eldred, Medical Officer, Zomba, this patient having his home in the Dedza district where infection was most probably contracted.

The following is a list of the cases of Sleeping Sickness diagnosed in the year 1915.

Month	No.	Name.	Sex.	District.	Village.	Date.	Remarks.
Jan. Nil.	—	—	—	—	—	—	—
Feb. = 1	212	Shadrach	Male	Marimba	Mkouchele	1915 16 Feb.	1915 D. 18 Feb. (U.M.C.A.)
Mar. = 3	213	Chiliboto	,,	Dowa	Chindungwa	2 Mar.	D. 24 Mar.
	214	Infaitekera	Female	,,	,,	6 ,,	D. 15 ,,
	215	Njolo	Male	,,	Sombe	16 ,,	D. 29 ,,
April = 3	216	Manfred	,,	S. Nyasa	Nabale	1 April	D. 8 April (U.M.C.A.)
	217	Chagwada	,,	Dowa	Kanzimbi	10 ,,	D. 20 May
	218	Sapitidwa	Female	,,	Kabwabwa	18 ,,	
May = 4	219	Chajali	Male	,,	Kalunda	10 May	D. 17 May
	220	Kamwanja	,,	,,	Gwende	9 ,,	D. 11 ,,
	221	Mwambala	,,	,,	Makho	15 ,,	D. 5 July
	222	Kabachila	,,	Marimba	Ndonda	11 ,,	D. 31 May (Prentice)
June = 2	223	Chingomele	Female	Dowa	Kabumbu	1 June	D. 28 June
	224	Maliwa	M	,,	Chimonjo	2 ,,	D. 2 July
July = 4	225	Azizi	,,	,,	Kalunda	2 July	D. 17 July
	226	Okubwalo	,,	,,	Mlezi	9 ,,	D. 10 ,,
	227	Tambiya	Female	,,	Mangwire	12 ,,	D. 20 ,,
	228	Chisindara	Male	,,	Kabumbu	26 ,,	D. 8 ,,
Aug. = 1	229	Chitipwa	,,	,,	Chikuni	19 Aug.	D. 5 Oct.
Sept. = 1	230	Kandamanja	,,	,,	Maganga	17 Sept.	D. 12 Oct.
Oct. = 1	231	Mwaanja	Female	,,	Chiunda	21 Oct.	D. 26 Oct.
Nov. = 1	232	Mferathengo	,,	,,	Matumba	3 Nov.	
December = 8	233	Mkandaonanji	,,	,,	Kaya	14 Dec.	D. 25 Jan.
	234	Wanthupenyako	,,	,,	Chinsamba	,, ,,	D. 29 Dec.
	235	Gundula	Male	,,	Matumba	,, ,,	D. 16 Feb.
	236	Tilione	Female	,,	Nkombedza	,, ,,	D. 12 Jan.
	237	Supenyanji	,,	,,	Mtalimanja	,, ,,	D. 14 Feb.
	238	Jerenje	Male	Dedza	Kachitsa	21 ,,	D. 29 Dec. (Eldred)
	239	Mdadzela	Female	Dowa	Mtalimanja	31 ,,	D. 26 Feb.
	240	Lidiya	,,	,,	Namachete	31 ,,	

From the above return it will be seen that the number of cases recorded in the Protectorate up to the end of the year 1915 has now reached a total of 240.

(2). INFECTIOUS OR EPIDEMIC.

Beri-Beri. Six cases were notified; of these one was returned from Port Herald, two from Zomba, and three from Fort Johnston. In the previous year only one case was reported from the Mlanje District.

Chicken-pox. There were 119 cases, as against 27 in the previous year, and 6 in the year preceding.

Dysentery. 351 cases with 14 deaths were returned, as against 315 cases and 6 deaths in 1914, and 283 cases and 3 deaths in 1913.

Of these 351 cases, 82 were reported from Port Herald, 56 from Blantyre, 154 from Zomba, and 159 from Fort Johnston.

Enteric. There were 6 cases notified; 3 in Blantyre and 3 at Karonga. None were fatal.

Two occurred among the inoculated, and four among the uninoculated.

Erysipelas. Only one case was returned; in the previous year three were recorded.

Gonorrhoea. 34 cases; as compared with 62 in the previous, and a similar number in the preceding year.

Leprosy. There were 12 cases notified; one from Port Herald, four from Blantyre, two from Zomba and five from Fort Johnston. Sixteen cases came under notice in 1914, and 26 in the preceding year.

Measles. Only 9 cases were returned, as against 12 and 19 in previous years.

Pneumonia. There were 41 cases with five deaths, as compared with 39 cases and 4 deaths last year, and 59 in the preceding year.

Small-pox. Under the head of general remarks reference has already been made to an outbreak of small-pox in the Lilongwe and Dowa districts.

2,768 cases with 864 deaths were returned by the District Resident, Lilongwe; and 767 cases with 77 deaths by the District Resident, Dowa.

Although this outbreak assumed epidemic proportions in these two districts, a noteworthy fact is that the infection has not up to the present spread to any of the adjoining districts. Lilongwe and Dowa are inhabited by the same race, amongst whom there is constant inter-tribal communication; and this explains why the outbreak has been of so limited a character.

Syphilis. 126 cases were returned, as against 125 and 131 in the preceding years.

These 126 cases were distributed as follows:—Port Herald 44, Blantyre 53, Zomba 16, Fort Johnston 13.

Tuberculosis. 16 cases, with three deaths, were notified during the year, as compared with 10 in 1914, and 32 in 1913.

Whooping Cough. There were 19 cases returned; in the previous year 14 were reported.

Yaws. A total of 22, as against 13 last year and 35 in the previous year, was recorded.

Pellagra. Only 4 cases occurred in the Zomba Central Prison, as compared with 12 in 1914, and 90 in 1913. There were no deaths.

This marked decline in the number of cases since the introduction of an improved dietary is noteworthy.

HELMINTHIC DISEASES.

13 cases of Taenia solium and 20 of Ankylostomiasis were returned.

B. EUROPEAN OFFICIALS.

As in the previous year the health of European Officials has not been satisfactory, and this no doubt is to be attributed to the suspension of leave and to the longer terms of service that have accordingly been imposed.

The invalidings in 1913 were nil; in 1914 they amounted to seven, and in 1915 to ten. As the number of officials may be estimated in round figures at about 150, it means that 6.6 per cent were invalided in the year under review.

There were 188 cases treated, with one death, as against 151 cases and no deaths in the previous year. The fatal case was one of haemorrhagic toxaemia.

Malaria accounted for 41 of the total admissions, namely, a proportion of about 22 per cent; the percentages under this head in the two previous years were 20·5 and 17·6 respectively.

The causes of invaliding were as follows:—Malaria 1; Appendicitis 1; Dysentery 1; Chronic Cystitis 1; Dilatation of Stomach 1; Insolation 1; Eye strain 1; Pyuria 1; Neurasthenia 1; and Atony of colon 1.

The following Tables showing sick, invaliding and death rates for European Officials apply to those stations only from which complete records have been available.

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EUROPEAN OFFICIALS, PORT HERALD.

——	1913	1914	1915
Total number of Officials	8	11	13
Average number resident	5	7	9
Total number on Sick List	5	5	8
Total number of days on Sick List	32	111	181
Average daily number on Sick List	·08	·30	·50
Percentage of Sick to average number resident	100	71·4	88·8
Average number of days on Sick List for each Patient ...	6·4	22·2	20·1
Average Sick time to each resident	4·0	15·8	20·1
Total number Invalided	Nil	Nil	1
Percentage of Invalidings to total residents	,,	,,	7·69
Total Deaths	,,	,,	Nil
Percentage of Deaths to total residents	,,	,,	,,
,, ,, ,, ,, average number resident	,,	,,	,,
No. of cases of Sickness contracted away from residence ...	,,	,,	,,

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EUROPEAN OFFICIALS, BLANTYRE.

——	1913	1914	1915
Total number of Officials	19	16	15
Average number resident	12	12	15
Total number on Sick List	5	11	15
Total number of days on Sick List	26	73	98
Average daily number on Sick List	·07	·20	·26
Percentage of Sick to average number resident	41	91.6	100
Average number of days on Sick List for each Patient ...	5·2	6·6	6·5
Average Sick time to each resident	·73	6·08	6·5
Total number Invalided	Nil	Nil	1
Percentage of Invalidings to total residents	,,	,,	6·6
Total Deaths	,,	,,	Nil
Percentage of Deaths to total residents	,,	,,	,,
,, ,, ,, ,, average number resident	,,	,,	,,
No. of cases of Sickness contracted away from residence ...	11	4	2

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EURPOEAN OFFICIALS, ZOMBA.

——	1913	1914	1915
Total number of Officials	65	75	49
Average number resident	51	58	49
Total number on Sick List	57	90	63
Total number of days on Sick List	724	591	1,151
Average daily number on Sick List	1·9	1·5	3·1
Percentage of Sick to average number resident	111.7	105·5	128·5
Average number of days on Sick List for each Patient	12·7	6·5	6·9
Average Sick time to each resident	11·1	10·2	23·1
Total number Invalided	—	6	8
Percentage of Invaliding to total residents	—	6·8	16·6
Total Deaths	1	Nil	1
Percentage of Deaths to total residents	1·5	Nil	2
,, ,, ,, ,, average number residents	1·9	Nil	8
No. of cases of Sickness contracted away from residence	—	Nil	Nil

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EUROPEAN OFFICIALS, FORT JOHNSTON

——	1913	1914	1915
Total number of Officials	8	16	10
Average number resident	6	9	6
Total number on Sick List	4	7	6
Total number of days on Sick List	10	89	79
Average daily number on Sick List	·02	·24	·21
Percentage of Sick to average number resident	66·6	77·8	66·6
Average number of days on Sick List for each Patient	2·5	12·7	13·1
Average Sick time to each resident	1·2	9·9	13·1
Total number Invalided	Nil	2	Nil
Percentage of Invalidings to total residents	,,	12·5	,,
Total Deaths	,,	Nil	,
Percentage of Deaths to total residents	,,	,,	,,
,, ,, ,, ,, average number resident	,,	,,	,,
No. of cases of Sickness contracted away from residence	,,	,,	,,

(c). GENERAL EUROPEAN POPULATION.

A total of 300 cases has been returned under this head, as against 240 in the previous year, and 305 in the year preceding.

In order of frequency the principal diseases treated were malaria, local injuries, diarrhoea, syphilis, and bronchitis.

III.—SANITATION

1—ADMINISTRATIVE.

The following Rules under the Epidemic and Contagious Diseases Ordinance, 1903, were notified in the Nyasaland Government Gazette on the 26th October, 1915 :—

1. These Rules may be cited as "The Epidemic and Contagious Diseases Rules, 1915".

2. No person shall enter or leave any area to which these Rules apply except at such places as have been appointed for that purpose by the Resident of the District.

3. Every person so entering or leaving any such area shall be subject to such inspection, cleansing and disinfection as may be ordered by the Resident of the District or by a Medical Officer.

By notification in the Gazette the above Rules were made applicable to the Lilongwe and Dowa districts which were both infected with small-pox.

2.—PREVENTIVE MEASURES.

The usual anti-mosquito measures have continued to be applied in the various townships, but there is nothing of special importance to mention under this head.

EPIDEMIC DISEASES.

Small-pox. The following is a return of the vaccinations which were performed during the year.

District	Successful.	Modified.	Failed.	Not seen.	Total.
Lower Shire	2,640	683	421	162	3,906
Ruo	5,070	1,014	448	266	6,798
Mlanje	1,807	997	992	173	3,969
West Shire	—	—	—	—	1,067
Blantyre	19,538	6,073	2,804	984	29,399
Zomba	1,493	300	322	104	2,219
Upper Shire	5,095	1,640	1,391	487	8,613
South Nyasa	39,582	6,998	5,626	3,110	55,316
Dedza	2,293	1,991	2,193	2,295	8,772
Lilongwe	9,762	5,587	4,044	2,234	21,627
Dowa	3,140	1,425	1,692	130	6,387
Marimba	2,961	766	945	97	4,769
West Nyasa	4,447	1,942	2,283	490	9,162
Mombera	7,536	1,406	713	336	9,991
North Nyasa	138	265	330	341	1,074
Total.	105,502	31,087	24,204	11,209	173,069

3. GENERAL MEASURES.

The following reports, referring to their respective stations, have been submitted by Medical Officers.

Port Herald. The chief measure adopted during the year was the introduction of dust bins for the removal of all refuse, European and Indian. Collection is made daily, and the refuse buried.

Questions connected with the purification of water used for domestic purposes, and for the better housing of Indians, were under consideration during the year, but the proposals put forward were deferred for the present.

Efficient drains for the removal of storm water were made throughout the township.

The river was cleared of grass with a view to mosquito reduction.

Blantyre. Sanitation stands much as it did in previous years.

It is noteworthy that no prosecutions for offences against the township bye laws were necessary during the year.

Zomba. There is nothing to add to the report on sanitation which was submitted last year.

Fort Johnston. Attention has been paid to the usual sanitary measures in the township, and there is nothing of a special nature to report.

TABLE IV.

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town. Port Herald.

—	Approximate area.	Number of proclaimed open spaces.
1913	200 acres	100 acres
1914	200 „	99 „
1915	200 „	99 „

2. Population.

—	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1913	277	124	12	1	414
1914	82	22	15	3	122
1915	82	22	15	3	122

3. Housing.

—	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—		
1913	32	—
1914	11	—
1915	12	—
Number of Huts :—		
1913	—	85
1914	—	32
1915	—	32

4. Mosquito Protection of Houses.

—	1913	1914	1915
Number of European houses wholly mosquito-protected ..	4	3	3
Number of European houses with mosquito room	1	5	6
Number rendered during the year wholly mosquito-protected	—	—	—
Number rendered during the year partially mosquito-protected	—	3	1

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

——	1913	1914	1915
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	Nil	Nil	Nil
Number of houses erected with sanction as to site, construction, and relation to other buildings	7	Nil	1
Number of huts erected with sanction as to site, construction, and relation to other buildings	Nil	Nil	Nil
Number of houses built without sanction	"	"	"
Number of huts built without sanction	"	"	"

ACTION TAKEN.

——	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1913	Nil	Nil	Nil	Nil
1914	"	"	"	"
1915	"	"	"	"

6. MARKETS.

——	Total number.	Number paved and drained.	Number unpaved.
1913	Nil	Nil	Nil
1914	"	"	"
1915	"	"	"

7. SLAUGHTER-HOUSES.

——	Total number.	Number paved and drained.	Number unpaved.
1913	Nil	Nil	Nil
1914	"	"	"
1915	"	"	"

8. LATRINES.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1913	4	—	3	—
1914	4	8	3	—
1915	5	10	3	3
Number of new Public Latrines erected during the year :—				
1913	1	—	Nil	—
1914	4	8	"	—
1915	1	2	"	—
Number of Public Latrines repaired during the year :—				
1913	2	—	1	—
1914	—	—	—	—
1915	3	6	3	3
Number of Public Latrines demolished during the year:—				
1913	1	Nil	Nil	Nil
1914	4	"	"	"
1915	—	"	"	"

—	1913	1914	1915
Number of Private Latrines	33	11	12
Average number of pails of nightsoil removed daily ...	—	11	12
Average number of soiled pails removed and clean pails substituted	—	11	12
Number of nightsoil men employed to clean latrines and remove excreta	—	11	2
Number of cesspools	Nil	Nil	Nil
Number of cesspools cleansed	"	"	"
Number of new cesspools constructed during the year ...	"	"	"
Number of old cesspools abolished	"	"	"
Number of cesspools oiled regularly by Department ...	"	"	"

9. REMOVAL OF REFUSE.

—	1913	1914	1915
Number of dustbins	Nil	Nil	24
Number of carts at work daily to remove refuse from streets	"	"	1
Amount of refuse removed daily	"	"	12 loads.
Number of carts at work daily to remove refuse from yards and premises...	" "	" "	1 12
Amount of refuse removed daily from yards and premises ...	"	"	2
Number of men employed for moving refuse	Done privately	"	"

10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse			Daily average number of cartloads of Slaughter House and Market Offal.		
	1913	1914	1915	1913	1914	1915	1913	1914	1915
Buried or trenched ...	B	u r i e	d	Nil	Nil	Nil	Nil	Nil	Nil
Burnt	—	—	—	—	—	—	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

* State mode of disposal.

11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS, AND COMPOUNDS.

1913	1914	1915
Not	estimated	Nil

12. WATER SUPPLY.

Nature of Water Supply.	1913	1914	1915
Pipe-borne water :—			
Source (river, lake, or spring) :—			
Number of linear yards	Water	drawn	from
Number of stand-pipes along roads	River,	Lower	Shire.
Number of stand-pipes in compounds and houses ...	Nil	Nil	Nil
Wells :—			
Public :—			
Number	Nil	Nil	Nil
Number with pumps protected against surface water and mosquito-protected	—	—	—
Private :—			
Number	2	4	5
Number protected against surface water and mosquito-protected	2	3	2
Tanks :—			
Public :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Private :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected	—	—	—
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less ..	—	—	—
Number above 400 gallons	—	—	—

Nature of Water Supply.	1913	1914	1915
Nature of tanks :—			
Wood	—	—	—
Iron	—	—	—
Concrete	—	—	—
Barrels :—			
Number	—	—	—
Number mosquito-protected	—	—	—

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1913	35	Nil
1914	45	"
1915	65	"
Lineal yards reconstructed during the year :—		
1913	—	"
1914	10	"
1915	20	"
Lineal yards repaired during the year :—		
1913	—	"
1914	—	"
1915	20	"
Lineal yards of new drains constructed during the year :—		
1913	—	"
1914	10	"
1915	20	"
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1913	—	"
1914	45	"
1915	400	"
Number of linear yards of ditches dug and graded :—		
1913	—	"
1914	50	"
1915	100	"
Average frequency of clearing ditches of grass :—		
1913	Twice a	year.
1914	"	"
1915	"	"

14. Clearance of Undergrowth, Long Grass, and Jungle.

——	1913	1914	1915
Number of square yards of weeds, grass, and vegetation cut and removed	225	Total area of Township	Total area of township.
Average frequency of clearance of rank vegetation on same area	Twice.	Total area once. 300 acres twice.	300 acres twice.

15. EXCAVATIONS AND LOW-LYING LAND.

——	1913	1914	1915
Number of pools and excavations	Nil	Nil	Nil
Number of excavations filled up	—	—	—
Amount of low-lying and marsh land raised and drained ...	—	—	—
Number of pools, marshes, streams, &c., fish-stocked ...	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools &c.	—	—	—

16. OILING.

——	1913	1914	1915
Number of drains oiled	Nil	Nil	Nil
Number of pools and excavations oiled	—	—	—
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	—	—	—

17. INSPECTIONS AND PROSECUTIONS.

——	1913	1914	1915
Number of inspectors employed	Town	Clerk &	1 Indian
Number of houses inspected	1 Inspec	tion by	M.O.
Number of houses where larvae were found	8	—	4
Number of notices served to remove conditions causing the breeding of larvae	4	Nil	3
Number of persons fined for having mosquito larvae on premises	4	Nil	Nil
Number of notices served to remove insanitary conditons on premises	Nil	1	2
Number of persons fined for not removing insanitary conditions after notice	Nil	Nil	Nil
Number of soda and aerated water factories inspected ...	Nil	Nil	Nil

TABLE IV.

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town. Blantyre.

——	Approximate area.	Number of proclaimed open spaces.
1913	1,685	Boma square
1914	1,685	Sports Grounds
1915	1,684	Golf links.

2. Population.

——	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1913	987	232	59	17	1,295
1914	391	160	53	21	625
1915					

3. Housing.

——	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—		
1913	56	—
1914	56	—
1915	56	—
Number of Huts :— ...		
1913	—	600
1914	—	600
1915	—	620

4. Mosquito Protection of Houses.

——	1913	1914	1915
Number of European houses wholly mosquito-protected ...	1	1	1
Number of European houses with mosquito room	”	”	1
Number rendered during the year wholly mosquito-protected	”	”	—
Number rendered during the year partially mosquito-protected	”	”	1

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

—	1913	1914	1915
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	Nil	4	1
Number of houses erected with sanction as to site, construction, and relation to other buildings	1	Nil	Nil
Number of huts erected with sanction as to site, construction, and relation to other buildings	Nil	„	20
Number of houses built without sanction	„	„	Nil
Number of huts built without sanction	„	„	„

ACTION TAKEN.

—	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1913	Nil	Nil	Nil	Nil
1914	„	„	„	„
1915	„	„	„	„

6. MARKETS.

—	Total number.	Number paved and drained.	Number unpaved.
1913	1	Nil	1
1914	1	„	1
1915	1	„	1

7. SLAUGHTER-HOUSES.

—	Total number.	Number paved and drained.	Number unpaved.
1913	1	Nil	1
1914	1	„	1
1915	1	„	1

8. LATRINES.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines:—				
1913	4	—	4	—
1914	4	—	3	—
1915	4	—	4	—
Number of new Public Latrines erected during the year:—				
1913	1	—	1	—
1914	—	—	—	—
1915	—	—	—	—
Number of Public Latrines repaired during the year:—				
1913	—	—	—	—
1914	—	—	—	—
1915	—	—	—	—
Number of Public Latrines demolished during the year:—				
1913	—	—	—	—
1914	1	—	—	—
1915	—	—	—	—

——	1913	1914	1915
Number of Private Latrines	26	78	67
Average number of pails of nightsoil removed daily ...	26	78	67
Average number of soiled pails removed and clean pails substituted	26	78	67
Number of nightsoil men employed to clean latrines and remove excreta	—	—	—
Number of cesspools	26	—	—
Number of cesspools cleansed	Nil	Nil	Nil
Number of new cesspools constructed during the year ...	"	"	"
Number of old cesspools abolished	"	"	"
Number of cesspools oiled regularly by Department ...	"	"	"

9. REMOVAL OF REFUSE.

——	1913	1914	1915
Number of dustbins	6	6	6
Number of carts at work daily to remove refuse from streets	1	2	1
Amount of refuse removed daily	—	—	—
Number of carts at work daily to remove refuse from yards and premises...	—	—	—
Amount of refuse removed daily from yards and premises ...	—	—	—
Number of men employed for moving refuse	3	8	8

10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse			Daily average number of cartloads of Slaughter House and Market Offal.		
	1913	1914	1915	1913	1914	1915	1913	1914	1915
Buried or trenched ...	Nil	13	67	2	2	2	Nil	Nil	Nil
Burnt	—	Nil	Nil	Nil	Nil	—	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

* State mode of disposal.

11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS, AND COMPOUNDS.

1913	1914	1915
Included in No. 10.		

12. WATER SUPPLY.

Nature of Water Supply.	1913	1914	1915
Pipe-borne water :—			
Source (river, lake, or spring) :—			
Number of linear yards	Nil	Nil	Nil
Number of stand-pipes along roads	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
Wells :—			
Public :—			
Number	2	2	2
Number with pumps protected against surface water and mosquito-protected	covered in but without pumps.		
Private :—			
Number	3	4	4
Number protected against surface water and mosquito-protected	All protected-one with pump.		
Tanks :—			
Public :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Private :—			
Number underground	5	18	18
Number mosquito-protected	Nil	5	5
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	13	18

Nature of Water Supply.	1913	1914	1915
Nature of tanks :—			
Wood	—	—	—
Iron	5	18	18
Concrete	—	—	—
Barrels :—			
Number	—	—	—
Number mosquito-protected	—	—	—

13. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1913	A few roads with brick gutters.	
1914		
1915	—	—
Lineal yards reconstructed during the year :—		
1913	All kept in order.	
1914	" "	" "
1915	" "	" "
Lineal yards repaired during the year :—		
1913	" "	" "
1914	—	—
1915	—	—
Lineal yards of new drains constructed during the year :—		
1913	—	—
1914	—	—
1915	About 400 yards constructed	
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1913	—	—
1914	All roadside ditches cleaned periodically.	
1915		
Number of linear yards of ditches dug and graded :—		
1913	—	—
1914	—	—
1915	—	—
Average frequency of clearing ditches of grass :—		
1913	Periodically.	
1914	—	—
1915	—	—

14. CLEARANCE OF UNDERGROWTH, LONG GRASS, AND JUNGLE.

——	1913	1914	1915
Number of square yards of weeds, grass, and vegetation cut and removed	No record.		
Average frequency of clearance of rank vegetation on same area	Cleaned periodically as required.		

15. EXCAVATIONS AND LOW-LYING LAND.

——	1913	1914	1915
Number of pools and excavations	Nil	Nil	All pools reported by Sanitary Inspector are drained or filled in at once by occupiers of land
Number of excavations filled up	—	—	
Amount of low-lying and marsh land raised and drained ...	—	—	
Number of pools, marshes, streams, &c., fish-stocked ...	—	—	
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools &c.	—	—	—

16. OILING.

——	1913	1914	1915
Number of drains oiled	Nil	Nil	Nil
Number of pools and excavations oiled	—	—	—
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	—	—	—

17. INSPECTIONS AND PROSECUTIONS.

——	1913	1914	1915
Number of inspectors employed	One native Sanitary Inspector works under M.O.H.		
Number of houses inspected	Nil	Nil	Nil
Number of houses where larvae were found ...	1	2	4
Number of notices served to remove conditions causing the breeding of larvae	—	2	4
Number of persons fined for having mosquito larvae on premises	—	—	—
Number of notices served to remove insanitary conditons on premises	30	47	63
Number of persons fined for not removing insanitary conditions after notice	6	43	—
Number of soda and aerated water factories inspected ...	2	2	2

TABLE IV.

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town. Zomba.

—	Approximate area.	Number of proclaimed open spaces.
1913	668 acres	—
1914	,, ,,	—
1915	,, ,,	—

2. Population.

—	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1913	841	279	59	25	1,204
1914	287	73	58	36	454
1915	345	72	74	32	523

3. Housing.

—	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—		
1913	56	Nil
1914	57	36 brick building with grass roof
1915	60	43
Number of Huts :—		
1913	Nil	600
1914	,,	33
1915	,,	40

4. Mosquito Protection of Houses.

—	1913	1914	1915
Number of European houses wholly mosquito-protected	Nil	Nil	Nil
Number of European houses with mosquito room	,,	,,	,,
Number rendered during the year wholly mosquito-protected	,,	,,	,,
Number rendered during the year partially mosquito-protected	,,	,,	,,

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

—	1913	1914	1915
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	Nil	Nil	
Number of houses erected with sanction as to site, construction, and relation to other buildings	1	1	
Number of huts erected with sanction as to site, construction, and relation to other buildings	Nil	2 (boys' houses)	
Number of houses built without sanction	"	—	
Number of huts built without sanction	"	—	

ACTION TAKEN.

—	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1913	—	—	—	—
1914	—	—	—	—
1915	—	—	—	—

6. MARKETS.

—	Total number.	Number paved and drained.	Number unpaved.
1913	1	—	1
1914	1	—	1
1915	1	—	1

7. SLAUGHTER-HOUSES.

—	Total number.	Number paved and drained.	Number unpaved.
1913	—	—	—
1914	2	—	2
1915	2	—	2

8. LATRINES.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines:—				
1913	3	3	5	Trench
1914	5	24	3	12 Trenches.
1915	5	24	3	12 „
Number of new Public Latrines erected during the year:—				
1913	Nil	Nil	Nil	—
1914	3	—	3	30
1915	Nil	—	3	—
Number of Public Latrines repaired during the year:—				
1913	5	Trench	5	Trench
1914	2	„	5	„
1915	—	—	—	—
Number of Public Latrines demolished during the year:—				
1913	Nil	—	Nil	—
1914	3	—	3	—
1915	—	—	—	—

—	1913	1914	1915
Number of Private Latrines	56	57	60
Average number of pails of nightsoil removed daily ...	56	57	60
Average number of soiled pail removed and clean pails substituted	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	one to each house.		
Number of cesspools	—	—	—
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	one	—
Number of cesspools oiled regularly by Department	—	—	—

9. REMOVAL OF REFUSE.

—	1913	1914	1915
Number of dustbins	12	57	60
Number of carts at work daily to remove refuse from streets	—	—	—
Amount of refuse removed daily	—	—	—
Number of carts at work daily to remove refuse from yards and premises	—	—	—
Amount of refuse removed daily from yards and premises ...		No record	
Number of men employed for moving refuse	—	—	—

10. Mode of Disposal of Excreta, Refuse, and Offal.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse			Daily average number of cartloads of Slaughter House and Market Offal.		
	1913	1914	1915	1913	1914	1915	1913	1914	1915
Buried or trenched ...	5	92	—	—	—	—	—	—	—
Burnt	—	—	—	—	—	—	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

* State mode of disposal.

11. Average Daily Number of Cartloads of Tin Cans, Bottles, Broken Crockery, and other Incombustible Material Removed from Houses, Huts, and Compounds.

1913	1914	1915
No record	No record	No record.

12. Water Supply.

Nature of Water Supply.	1913	1914	1915
Pipe-borne water :—			
Source (river, lake, or spring) :—	River	River	River
Number of linear yards	—	—	—
Number of stand-pipes along roads	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
Wells :—			
Public :—			
Number	—	—	—
Number with pumps protected against surface water and mosquito-protected	Nil	Nil	Nil
Private :—			
Number	—	—	—
Number protected against surface water and mosquito-protected	—	—	—
Tanks :—			
Public :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground	—	—	—
Number mosquito-protected	—	—	—
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	—	—	—
Private :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected	—	—	—
Number above ground	—	1	—
Number mosquito-protected	—	1	—
Number of 400 gallons capacity or less	—	1	—
Number above 400 gallons	—	—	—

Nature of Water Supply.	1913	1914	1915
Nature of tanks :—			
Wood	Nil	Nil	Nil
Iron	1	1	1
Concrete	Nil	Nil	Nil
Barrels :—			
Number	,,	,,	,,
Number mosquito-protected	—	—	—

13. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1913	890	Nil
1914	1,704	,,
1915	—	—
Lineal yards reconstructed during the year :—		
1913	Nil	Nil
1914	,,	,,
1915	—	—
Lineal yards repaired during the year :—		
1913	Nil	Nil
1914	,,	,,
1915	—	—
Lineal yards of new drains constructed during the year :—		
1913	Nil	Nil
1914	814	,,
1915	—	—
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1913	No record.	
1914	,,	,,
1915	,,	,,
Number of linear yards of ditches dug and graded :—		
1913	No record.	
1914	,,	,,
1915	—	—
Average frequency of clearing ditches of grass :—		
1913	Periodically.	
1914	,,	,,
1915	—	—

14. CLEARANCE OF UNDERGROWTH, LONG GRASS, AND JUNGLE.

——	1913	1914	1915
Number of square yards of weeds, grass, and vegetation cut and removed	No record.		
Average frequency of clearance of rank vegetation on same area	Periodically.		

15. Excavations and Low-lying Land.

——	1913	1914	1915
Number of pools and excavations	2	—	—
Number of excavations filled up	2	9	2
Amount of low-lying and marsh land raised and drained ...	—	—	—
Number of pools, marshes, streams, &c., fish-stocked ...	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools &c.	—	—	—

16. Oiling.

——	1913	1914	1915
Number of drains oiled	Nil	Nil	Nil
Number of pools and excavations oiled	—	—	—
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	—	—	—

17. Inspections and Prosecutions.

——	1913	1914	1915
Number of inspectors employed	2	1	1
Number of houses inspected	56	57	60
	(also Indian Quarters) wherever rain water gutters exist.		
Number of houses where larvae were found	—	—	—
Number of notices served to remove conditions causing the breeding of larvae	4	—	6
Number of persons fined for having mosquito larvae on premises	1	1	—
Number of notices served to remove insanitary conditons on premises	30	about 100	about 40
Number of persons fined for not removing insanitary conditions after notice	4	29	—
Number of soda and aerated water factories inspected ...	1	1	2

TABLE IV.

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town. Fort Johnston.

—	Approximate area.	Number of proclaimed open spaces.
1913	44 acres	Nil
1914	" "	—
1915	" "	—

2. Population.

—	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1913	77	26	15	7	118
1914	74	23	17	5	119
1915	"	"	21	6	—

3. Housing.

—	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—		
1913	13	
1914	15	
1915	15	
Number of Huts :—		
1913	Nil	
1914	1	
1915	11	

4. Mosquito Protection of Houses.

—	1913	1914	1915
Number of European houses wholly mosquito-protected	Nil	Nil	Nil
Number of European houses with mosquito room	11	11	12
Number rendered during the year wholly mosquito-protected	Nil	Nil	Nil
Number rendered during the year partially mosquito-protected	2	1	2

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

—	1913	1914	1915
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	Nil	Nil	Nil
Number of houses erected with sanction as to site, construction, and relation to other buildings	3	2	1
Number of huts erected with sanction as to site, construction, and relation to other buildings	Nil	Nil	Nil
Number of houses built without sanction	"	"	"
Number of huts built without sanction	"	"	"

ACTION TAKEN.

—	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1913	Nil	Nil	Nil	Nil
1914	"	"	"	"
1915	"	"	"	"

6. MARKETS.

—	Total number.	Number paved and drained.	Number unpaved.
1913	1	Nil	1
1914	1	"	1
1915	1	"	1

7. SLAUGHTER-HOUSES.

—	Total number.	Number paved and drained.	Number unpaved.
1913	Nil	Nil	Nil
1914	"	"	"
1915	"	"	"

8. LATRINES.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1913	2	—	1	—
1914	4	—	4	—
1915	4	—	2	—
Number of new Public Latrines erected during the year :—				
1913	1	—	Nil	—
1914	2	—	3	—
1915	Nil	—	Nil	—
Number of Public Latrines repaired during the year :—				
1913	1	—	1	—
1914	2	—	1	—
1915	4	—	2	—
Number of Public Latrines demolished during the year :—				
1913	Nil	—	Nil	—
1914	„	—	„	—
1915	1	—	„	—

—	1913	1914	1915
Number of Private Latrines	14	15	17
Average number of pails of nightsoil removed daily ...	14	15	17
Average number of soiled pail removed and clean pails substituted	14	15	17
Number of nightsoil men employed to clean latrines and remove excreta	14	15	17
Number of cesspools	Nil	Nil	Nil
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	—	—
Number of cesspools oiled regularly by Department	—	—	—

9. REMOVAL OF REFUSE.

—	1913	1914	1915
Number of dustbins	Nil	57	3
Number of carts at work daily to remove refuse from streets	—	—	—
Amount of refuse removed daily	Rubbish boxes	removed	daily in
Number of carts at work daily to remove refuse from yards and premises	—	—	—
Amount of refuse removed daily from yards and premises ...	—	—	—
Number of men employed for moving refuse	—	—	—

10 MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse			Daily average number of cartloads of Slaughter House and Market Offal.		
	1913	1914	1915	1913	1914	1915	1913	1914	1915
Buried or trenched ...	Buried		19	—	—	Nil.	Nil.	Nil.	Nil.
Burnt	—	—	—	—	—	7	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

* State mode of disposal.

11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSE, HUTS, AND COMPOUNDS.

1913	1914	1915
Nil	Nil	Nil

12. WATER SUPPLY.

Nature of Water Supply.	1913	1914	1915
Pipe-borne water :—			
Source (river, lake, or spring) :—			
Number of linear yards	Water	obtained	from the
Number of stand-pipes along roads	river	and	wells.
Number of stand-pipes in compounds and houses ...	—	—	—
Wells :—			
Public :—			
Number	Nil	Nil	Nil
Number with pumps protected against surface water and mosquito-protected	—	—	—
Private :—			
Number	3	4	4 (1 dry)
Number protected against surface water and mosquito-protected	—	—	—
Tanks :—			
Public :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected and served by pumps ...	,,	,,	,,
Number above ground	,,	,,	,,
Number mosquito-protected	,,	,,	,,
Number of 400 gallons capacity of less	,,	,,	,,
Number above 400 gallons	,,	,,	,,
Private :—			
Number underground	Nil	Nil	Nil
Number mosquito-protected	,,	,,	,,
Number above ground	,,	,,	2
Number mosquito-protected	,,	,,	Nil
Number of 400 gallons capacity or less	,,	,,	2
Number above 400 gallons	,,	,,	,,

Nature of Water Supply.	1913	1914	1915
Nature of tanks:—			
Wood	—	—	—
Iron	—	—	2
Concrete	—	—	—
Barrels:—			
Number	—	—	—
Number mosquito-protected	—	—	—

13. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains:—		
Lineal yards of masonry drains:—		
1913	Brick gutters	along sides
1914	of chief	roads
1915	”	”
Lineal yards reconstructed during the year:—		
1913	”	”
1914	”	”
1915	3	”
Lineal yards repaired during the year:—		
1913	Nil	
1914	”	
1915	4	
Lineal yards of new drains constructed during the year:—		
1913	Nil	
1914	”	
1915	”	
Earth drains or ditches:—		
Number of linear yards of ditches cleaned:—		
1913	”	
1914	”	
1915	”	
Number of linear yards of ditches dug and graded:—		
1913	”	
1914	”	
1915	”	
Average frequency of clearing ditches of grass:—		
1913	No ditches	
1914	Sandy soil.	
1915	”	

14. CLEARANCE OF UNDERGROWTH, LONG GRASS, AND JUNGLE.

——	1913	1914	1915
Number of square yards of weeds, grass, and vegetation cut and removed	Not esti	mated.	
Average frequency of clearance of rank vegetation on same area	Cleared	periodica	lly.

15. EXCAVATIONS AND LOW-LYING LAND.

—	1913	1914	1915
Number of pools and excavations	Nil	Nil	Nil
Number of excavations filled up	—	—	—
Amount of low-lying and marsh land raised and drained ...	—	—	—
Number of pools, marshes, streams, &c., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools &c.	—	—	—

16. OILING.

—	1913	1914	1915
Number of drains oiled	Nil	Nil	Nil
Number of pools and excavations oiled	—	—	—
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	—	—	—

17. INSPECTIONS AND PROSECUTIONS.

—	1913	1914	1915
Number of inspectors employed	Nil	Nil	Nil
Number of houses inspected	All	All	All
Number of houses where larvae were found ...	—	—	—
Number of notices served to remove conditions causing the breeding of larvae	Nil	Nil	Nil
Number of persons fined for having mosquito larvae on premises	Nil	Nil	Nil
Number of notices served to remove insanitary conditons on premises	4	3	„
Number of persons fined for not removing insanitary conditions after notice	Nil	Nil	„
Number of soda and aerated water factories inspected ..	„	„	„

SECTION V.

HOSPITALS AND DISPENSARIES.

Blantyre. A hospital for natives was completed during the early part of the year, and provides accommodation for 10-12 beds.

Zomba. A new ward of 6 beds was added to the European Civil Hospital; and an addition was made to the Civil Medical Store by walling in a portion of the verandah.

Karonga. The presence of a large number of troops at this station necessitated the erection of two additional hospitals; these were of burnt brick but had iron roofs. On the advance of the troops into German East Africa both these hospitals were evacuated, and the iron roofing of the two buildings was subsequently removed.

DISEASES TREATED.

Dysentery. 351 cases with 14 deaths, as against 315 cases and 6 deaths in the previous year.

Gonorrhoea. 34 cases, as against 62 last year.

Leprosy. 12 cases, as compared with 16 in the past, and 26 in the previous year.

Malaria. 621 cases. In 1914 and 1913 there were 729 and 757 cases, respectively.

Blackwater Fever. 2 cases, as against 3 in 1914, and 7 in 1913.

Pneumonia. 41 cases with 5 deaths, as compared with 39 cases and 4 deaths in the previous year.

Syphilis. 126 cases. In 1914 there were 125 cases recorded, and 131 in 1913.

Tuberculosis. 16 cases with 3 deaths, as against 10 cases in the past, and 32 in the previous year.

Yaws. 22 cases, as compared with 12 in 1914.

Rheumatism. 492 cases, as against 426 in the previous year.

Diseases of the Eye contributed 779 cases.

Diseases of the Circulatory System gave rise to 11 cases.

Diseases of the Respiratory System contributed 996 cases with one death. Of these 62 were returned as Pleurisy and 914 as Bronchitis.

Diseases of the Digestive System furnished 2,433 cases with 2 deaths.

Of these, Caries of the Teeth accounted for 396 cases, Dyspepsia 47, Diarrhoea 1,048 with 1 death, Constipation 761, Colic 45, and a fatal case of Ascites.

Diseases of the Urinary System, 12 cases with 1 death. Of these 6 were cases of Cystitis.

Diseases of the Generative System gave 98 cases with 1 death. Of these 45 were amongst males, and 53 among females.

Diseases of the Organs of Locomotion contributed 84 cases.

Diseases of the Connective Tissue gave 276 cases, and included 152 cases of Cellulitis and 108 of Abscess.

Diseases of the Skin were responsible for 3,302 cases. Of these Ulcers furnished 1,166 and Scabies 1,639 cases.

Injuries accounted for 2,878 cases with 4 deaths.

Tumours contributed 7 cases, as against 4 in the previous year.

Animal Parasites accounted for 98 cases. Among these were 13 cases of Taenia solium with 1 death, 15 cases of urinary Bilharziasis, and 20 of Ankylostomiasis.

TABLE VI.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1915.

PORT HERALD NATIVE HOSPITAL.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Chicken-pox	4	—
Dysentery	22	—
Malaria :—Tertian	15	—
Chronic Malaria	7	—
Pneumonia	2	—
Syphilis :—Primary	5	—
Secondary	5	—
Tuberculosis	2	—
LOCAL DISEASES.		
Neuritis	10	—
Cataract	7	—
Bronchitis	20	—
Pleurisy	12	—
Enteritis	11	—
Liver Abscess	1	1
Elephantiasis	1	—
Abortion	1	—
Mastitis	1	—
Arthritis	3	—
Cellulitis	3	—
Abscess	12	—
Scabies	11	—
INJURIES.		
General	15	1
Local	36	—
Chronic Ulcers	33	—
SURGICAL OPERATIONS.	11	—
TUMOURS.	4	—
Poisons	1	—
ANIMAL PARASITES.		
Tænia Solium	3	—
Total	250	2

BLANTYRE EUROPEAN HOSPITAL.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Dysentery	1	—
Enteric	2	—
Malaria :—Tertian	10	—
Aestivo-autumnal	5	—
Syphilis :—Primary	1	—
Secondary	1	—
INTOXICATIONS.		
Alcoholism	2	1
Morphinism	1	—
Carried forward	32	1

TABLE VI.—IN-PATIENTS—*Continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1915.

BLANTYRE EUROPEAN HOSPITAL.—*Continued.*

Diseases.	Admissions	Deaths
Brought forward.	23	1
GENERAL DISEASES.		
Neurasthenia	1	—
LOCAL DISEASES.		
Paralysis	1	—
Digestive System :—Gastritis	1	—
Enteritis	1	—
Appendicitis	2	—
Cirrhosis	1	1
Lymphatic System :—Inflammation of Lymphatic Gland ...	1	—
Suppuration of Lymphatic Gland ...	1	—
Lymphangitis	1	—
Urinary System :—Cystitis	1	—
Connective Tissue :—Abscess	1	
INJURIES.		
General	1	—
Local	4	—
SURGICAL OPERATIONS	2	—
ANIMAL PARASITES.		
Ankylostomiasis	1	—
Total	43	2

ZOMBA EUROPEAN CIVIL HOSPITAL.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Dysentery	7	—
Malaria :—Tertian	21	—
INFECTIVE DISEASES.		
Rheumatism	2	—
INTOXICATIONS.		
Hæmorrhagic Toxæmisa	1	1
GENERAL DISEASES.		
Pyrexia	3	—
LOCAL DISEASES.		
Nervous System—Neuritis	1	—
Respiratory System—Bronchitis	1	—
Carried forward.	36	1

Table VI.—In-Patients—*Continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1915.

Zomba European Civil Hospital.—*Continued.*

Diseases.	Admissions.	Deaths.
Brought forward.	36	1
Local Diseases.		
Respiratory System—Pleurisy	1	—
Digestive System :—Pharyngitis	1	—
Inflammation of Tonsils	1	—
Enteritis	1	—
Diarrhœa	1	—
Digestive System—Hepatitis—Acute	1	—
Lymphatic System—Inflammation of Lymphatic Gland	3	—
Urinary System—Cystitis	1	—
Injury to kidney	1	—
Female Organs—Confinements	6	—
Abortion	1	—
Premature Birth	1	—
Organs of Locomotion—Arthritis	2	—
Periostitis	1	—
Connective Tissue—Celluitis	1	—
Abscess	1	—
Injuries.		
Local	5	—
Animal Parasites.		
Ankylostomiasis	1	—
Total	66	1

Fort Johnston European Civil Hospital.

Diseases.	Admissions.	Deaths.
Infective Diseases		
Malaria—Aestivo-autumnal	2	—
Intoxications.		
Alcoholism	1	—
Local Diseases.		
Digestive System—Inflammation of Tonsils	1	—
Abscess	1	—
Total	5	—

TABLE VI.—IN-PATIENTS—*Continued.*

RETURN OF DISEASES (IN-PATIENTS) FOR THE YEAR 1915.

FORT JOHNSTON MILITARY CLEARING HOSPITAL.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Dysentery	3	—
Aestivo-autumnal :—Malaria—Tertian	22	—
Syphilis :—Secondary	1	—
INTOXICATIONS.		
Lumbago	1	—
LOCAL DISEASES.		
Heart	1	—
Diarrhœa	2	—
Abscess of Knee	1	—
Total	31	—

ZOMBA HOSPITAL FOR NATIVE TROOPS.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Beri-Beri	2	—
Chicken-pox	9	—
Dysentery	9	—
Leprosy :—Nodular	1	—
Anæsthetic	1	—
Malaria :—Tertian	8	—
Measles	7	—
Pneumonia	10	2
Relapsing Fever	2	1
Rheumatism	5	—
Syphilis :—Primary	2	—
Secondary	4	—
Tuberculosis	1	—
Whooping Cough	2	—
Yaws	3	—
Climatic Bubo	2	—
GENERAL DISEASES.		
Anæmia	2	—
Mumps	1	—
Carried forward	71	3

TABLE VII.—IN-PATIENTS—*Continued*.

RETURN OF DISEASES (IN-PATIENTS) FOR THE YEAR 1915.

ZOMBA HOSPITAL FOR NATIVE TROOPS.—*Continued*.

Diseases.	Admissions.	Deaths.
Brought forward	71	3
LOCAL DISEASES.		
Nervous System :—Epilepsy	1	—
Diseases of the Eye :—Conjunctivitis	6	—
Ulceration of Cornea	1	—
Iritis	2	—
Optic Neuritis	1	—
Ambly-opia	2	—
Circulatory System :—Synespi	1	—
Phlebitis	1	—
Respiratory System :—Laryngitis	1	—
Bronchitis	6	—
Pleurisy	5	—
Digestive System :—Gumboil	1	—
Dyspepsia	3	—
Diarrhœa	2	—
Hepatitis—Acute	1	—
Lymphatic System :—Inflammation of Lymphatic Gland ...	3	—
Generative System :—Gleet	1	—
Organs of Locomotion :—Osteitis	1	—
Arthritis	1	—
Myasitis	2	—
Connective Tissue :—Abscess	1	—
Diseases of the Skin :—Boil	1	—
Ulcer	3	—
INJURIES.		
Local	2	—
SURGICAL OPERATIONS.	10	—
ANIMAL PARASITES.		
Urinary Bilharzia	4	—
Ankylostomiasis	3	—
Total	137	3

NATIVE HOSPITAL, ZOMBA.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Chicken-pox	3	—
Dysentery	10	2
Malaria :—Tertian	5	—
Pneumonia	2	—
Relapsing Fever	4	—
Trypanosomiasis (Sleeping Sickness)	1	—
Syphilis :—Primary	3	—
Secondary	2	—
Yaws	5	—
Carried forward	35	2

TABLE VI.—IN-PATIENTS.—*Continued*

RETURN OF DISEASES AND DEATHS (IN-PATIENT) FOR THE YEAR 1915.

NATIVE HOSPITAL, ZOMBA.—*Continued.*

Diseases.	Admissions.	Deaths.
Brought forward.	35	2
LOCAL DISEASES.		
Neuritis	1	—
Diseases of the Eye :—Conjunctivitis...	1	—
Ulceration of Cornea...	1	—
Blindness	1	—
Dialated pupil (unknown origin) ...	1	—
Injury eye	1	—
Respiratory System :—Bronchitis	5	—
Broncho-pneumonia	1	—
Pleurisy	3	—
Dyspepsia	3	—
Diarrhœa	5	1
Constipation	1	—
Colic	1	—
Urinary System :—Cystitis	2	—
Female Organs :—Nama	1	—
Delayed Labour	4	1
Organs of Locomotion :—Fibrositis	1	—
Connective Tissue :—Abscess	5	—
Diseases of the Skin :—Herpes	1	—
Scabies	1	—
Undiagnosed	3	1
Ulcer	61	2
INJURIES.		
Local	18	1
Red sore	1	—
Snake bite	1	—
ANIMAL PARASITES		
Urinary Bilharzia	3	—
Dracunculus	2	—
Ankylostomiasis	1	—
Total	165	8

ZOMBA CENTRAL PRISON.

Diseases.	Admissions.	Deaths.
INFECTIVE DISEASES.		
Chicken-pox	59	—
Dysentery...	26	11
Malaria :—Tertian	7	—
Measles	2	—
Pneumonia	7	3
Rheumatism	4	—
Syphilis :—Secondary...	1	—
Tuberculosis	3	3
Carried forward.	109	17

TABLE VI.—IN-PATIENTS.—*Continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1915.

ZOMBA CENTRAL PRISON.—*Continued.*

Diseases.	Admissions.	Deaths.
Brought forward.	109	17
INTOXICATIONS.		
Pellagra	2	—
Hiccough	1	—
LOCAL DISEASES.		
Nervous System :—Meningitis	1	1
Epilepsy	1	1
Neuralgia	2	—
Diseases of the Respiratory System :—Bronchitis	18	1
Pleurisy	1	—
Diseases of the Digestive System :—Caries of teeth	2	—
Diarrhœa	6	—
Constipation	2	—
Diseases of the Urinary System :—Renal Colic	1	—
Diseases of the Generative System :—Orchitis	2	—
Diseases of Connective Tissue :—Abscess	11	1
Diseases of the Skin :—Boil	6	—
Ulcer	2	—
Injuries :—Local	13	1
Parasites :—Ankylostomiasis	1	
Total	181	22

FORT JOHNSTON NATIVE HOSPITAL.

Diseases	Admissions.	Deaths.
INFECTIVE DISEASES.		
Beri-Beri	1	—
Dysentery	8	1
Gonorrhœa	1	—
Leprosy :—Nodular	1	
Malaria :—Aestivo-autumnal	4	
Chronic Malaria	2	—
Pellagra	3	—
Relapsing Fever	1	—
Syphilis :—Primary	1	—
Yaws	4	—
GENERAL DISEASES.		
Debility	3	—
Carried forward	29	1

Table VI.—In-Patients—*Continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1915

Fort Johnston Native Hospital—*Continued.*

Diseases.	Admissions.	Deaths.
Brought forward	29	1
Local Diseases.		
Nervous System :—Paralysis	1	1
Epilepsy	1	—
Idiocy	1	1
Mania	1	1
Delusional Insanity	1	—
The Eye :—Conjunctivitis	1	—
Iritis	1	—
Optic Neuritis	2	—
Circulatory System :—Aneurism	1	—
Respiratory System :—Mines Phthisis	1	—
Pleurisy	1	—
Empyema	1	—
Digestive System :—Diarrhœa	4	—
Constipation	1	—
Ascites	1	1
Lymphatic System :—Inflamation of Lymptatic Gland ...	2	—
Urinary System :—Cystitis	1	—
Generative System :—Gleet	3	—
Soft chancre	1	—
Phagedæna of Scrotum ...	2	—
„ of penis	1	—
Organs of Locomotion :—Osteitis (caries)	3	—
Arthritis	1	—
Septic Foot	1	—
Cracked Feet	1	—
Connective Tissue :—Cellulitis	2	—
Abscess	6	—
Whitlow	1	—
The Skin :—Eczema	1	—
Ulcers	84	—
Erythema gegratum	1	—
Injuries.		
Rifle	1	1
Burns	4	—
Contusions & Abrasion	2	—
Wounds	16	1
Crocodile Wounds	3	1
Lion and Hyæna wounds	2	—
Fractures	4	—
Surgical Operations.		
Amputation of leg	1	—
Tumours.		
Multiple synoviæ	1	—
Total	193	8

TABLE VII.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

PORT HERALD EUROPEAN DISPENSARY.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Gonorrhœa	2	—
Malaria :—Tertian	7	—
Chronic Malaria	3	—
Black-water	1	—
Syphilis :—Primary	4	—
Secondary	1	—
INTOXICATIONS.		
Alcoholism	1	—
GENERAL DISEASES		
Anæmia	1	—
LOCAL DISEASES.		
Nervous System :—Neuritis	1	—
Delusional Insanity (Delirium tremens)	1	—
Diseases of the Eye :—Conjunctivitis	1	—
Iritis	1	—
Diseases of the Ear—Inflammation	1	—
Diseases of the Nose—Rhenitis	3	—
Epestaxis	1	—
Respiratory System—Bronchitis	2	—
Pleurisy	1	—
Asthma	1	—
Digestive System :—Caries of teeth	3	—
Gastritis	8	—
Ulceration of Stomach	—	1
Hæmatemesis	1	—
Dyspepsia	1	—
Enteritis	2	—
Diarrhœa	2	—
Lymphatic System :—Lymphangitis	1	—
Generative System :—Urethritis	2	—
Gleet	1	—
Empididymitis	3	—
Female Organs :— Menopause	—	1
Skin :—Boil	2	—
Psoriasis	1	—
Tinea	2	—
Prickly Heat	3	—
Papelloma	1	—
Injuries :—General	1	—
Local	4	—
Parasites :—Trematoda (Flukes) Bilharzia	2	—
Total	73	2

TABLE VII.—OUT-PATIENTS.—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

PORT HERALD NATIVE DISPENSARY.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Beri-Beri	1	—
Chicken-pox	4	—
Dysentery	51	9
Gonorrhœa	6	—
Leprosy :—Nodular	1	—
Malaria :—Tertian	60	25
Aestivo-autumnal	4	1
Chronic Malaria	9	—
Pneumonia	—	7
Syphilis :—Primary	24	—
Secondary	3	1
Tuberculosis	6	—
Yaws	1	—
Mumps	1	—
LOCAL DISEASES.		
Nervous System :—Neuritis	26	6
Epilepsy	3	3
Neuralgia	9	3
Melancholia	1	1
Diseases of the Eye :—Conjunctivitis	105	84
Keratitis	2	—
Ulceration of Cornea	1	1
Iritis	3	—
Cataract	2	—
Diseases of the Ear :—Inflammation	47	40
Diseases of the Nose	1	—
Respiratory System :—Bronchitis	198	72
Pleurisy	18	6
Digestive System :—Stomatitis	4	—
Caries of teeth	69	10
Dyspepsia	3	1
Enteritis	21	3
Hernia	1	—
Diarrhœa	116	32
Constipation	55	11
Colic	20	2
Lymphatic System :—Lymphangitis	3	—
Urinary System :—Cystitis	1	—
Generative System :—Orchitis	3	—
Organs Female :—Abortion	—	6
Puerperal Septicæmia	—	17
Mastitis	—	1
Organs of Locomotion :—Osteitis	9	—
Arthritis	32	5
Spondylitis	1	—
Connective Tissue :—Cellulitis	61	9
Abscess	11	2
Elephantiasis	3	1
Diseases of the Skin :—Urticaria	2	—
Eczema	12	2
Carried forward	1,014	361

TABLE VII.—OUT-PATIENTS.—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915

PORT HERALD NATIVE DISPENSARY.—*Continued.*

Diseases.	Male.	Female.
Brought forward	1,014	361
LOCAL DISEASES—*Continued.*		
Boil	35	3
Scabies	204	108
Acne	4	—
INJURIES.		
General	322	54
Local	369	115
SURGICAL OPERATIONS.	3	—
POISONS.	2	—
ANIMAL PARASITES.		
Trematoda (Flukes)	11	—
Tænia Solium	9	—
Tænia Saginata	5	—
Ascaris	12	—
Ankylostomiasis	5	—
Total	1,995	641

BLANTYRE NATIVE HOSPITAL AND DISPENSARY.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Chicken-pox	15	8
Dysentery	50	5
Gonorrhœa	16	—
Leprosy :—Anæsthetic	1	—
Mixed	3	—
Malaria :—Tertian	125	38
Aestivo-autumnal	12	—
Chronic Malaria	1	—
Pneumonia	5	1
Relapsing Fever	1	—
Rheumatic Fever	1	—
Trypanosomiasis (Sleeping Sickness)	1	—
Syphilis :—Primary	43	—
Secondary	6	—
Inherited	2	—
Tetanus	1	—
Tuberculosis	3	—
Whooping Cough	10	—
Yaws	1	—
Carried forward	297	52

TABLE VII.—OUT-PATIENTS—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915

BLANTYRE NATIVE HOSPITAL AND DISPENSARY—*Continued.*

Diseases.	Male.	Female.
Brought forward.	297	52
LOCAL DISEASES.		
Nervous System:—Epilepsy	5	—
Mental Diseases :—Mania	1	—
Melancholia	1	—
Disease of the Ear :—Inflammation	60	25
Diseases of the Nose	2	—
Circulatory System :—Aortic	1	—
Respiratory System :—Laryngitis	4	—
Bronchitis	58	32
Broncho-pneumonia	1	—
Abscess of Lung ...	1	—
Pleurisy	6	—
Digestive System :—Caries of teeth	70	9
Inflammation of Tonsils	5	—
Hernia	1	—
Diarrhœa	91	19
Constipation	100	10
Lymphatic System :—Elephantiasis	1	—
Urinary System:—Acute Nephritis (Ealampsia) ...	—	1 (Died)
Generative System :—Stricture	2	—
Soft Chancre	2	—
Hydrocele	3	—
Abscess of Testicle	2	—
Phimosis	9	—
Female Organs :—Leucorrhœa	—	1
Delayed Labour	—	3
Retained Placenta	—	2
Connective Tissue :—Cellulitis	2	—
Abscess	4	—
Diseases of the Skin—Urticaria	2	—
Boil	27	—
Psoriasis	60	21
Tinea	79	—
Scabies	80	39
INJURIES.		
General	4	—
Wounds	178	100
Chronic Yaws	109	37
Local	16	—
Burns	17	—
SURGICAL OPERATIONS.	4	—
ANIMAL PARASITES.		
Ascaris	1	—
Ankylostomiasis	5	—
Total	1,310	351

TABLE VII.—OUT-PATIENTS—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

ZOMBA DISPENSARY,—EUROPEANS.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Dysentery	9	—
Gonorrhœa	1	—
Malaria :—Tertian	46	6
Relapsing Fever	1	—
Rheumatic Erythema	—	1
Syphilis :—Primary	1	—
Whooping Cough...	—	2
Rheumatism	4	—
GENERAL DISEASES.		
Anæmia	4	—
Gout	1	—
Exhaustion	1	—
Insolation	3	—
Pyrexia	16	1
Nervous System :—Neuritis	1	—
Neuralgia	1	—
Hysteria	—	1
Aphasia	1	—
LOCAL DESEASES.		
Eye :—Eye strain	1	—
Ear :—Inflammation	1	—
Respiratory System :—Bronchitis	1	2
Pleurisy	1	—
Catarrh...	1	—
Digestive System :—Stomatitis...	1	—
Caries of teeth	1	—
Inflammation of Tonsils	2	1
Gastritis	6	1
Dyspepsia	2	2
Enteritis	1	3
Colitis	1	—
Pyarrhoea	—	1
Diarrhoea ...	18	1
Constipation	2	2
Hæmorrhoids	3	—
Pharyngitis	3	1
Hepatitis—Acute	2	—
Lymphatic System :—Inflammation of Lymphatic Gland	2	1
Urinary System :—Bright's Disease	1	—
Colic (Biliary)	1	—
Bubo climatic	1	—
Generative System :—Varicocele	1	—
Female Organs :—Splingitis	—	1
Organs of Locomotion :—Arthritis	3	1
Periostitis	2	—
Synovitis	—	1
Carried forward.	148	29

TABLE VII.—OUT-PATIENTS—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

ZOMBA EUROPEAN DISPENSARY.—*Continued.*

Diseases.	Male.	Female.
Brought forward.	143	29
LOCAL DISEASES.—*Continued.*		
Connective Tissue :—Cellulitis	1	—
Abscess	5	—
Alveolar Abscess	1	—
„ Sequestian	1	—
Skin :—Urticaria	2	—
Eczema	1	2
Boil	7	—
Onychia	1	1
Sycosis	1	—
Tinea	1	—
Acne	1	—
Ulcer	4	1
INJURIES.		
Local	23	2
SURGICAL OPERATIONS :—Sebacians Tumour of scalp	1	—
ANIMAL PARASITES.		
Ankylostomiasis	1	—
Total	199	35

FORT JOHNSTON EUROPEAN DISPENSARY.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Dysentery	—	1
Malaria :—Aestivo-autumnal	5	1
INTOXICATIONS.		
Alcoholism	1	—
Rheumatism	2	—
Debility	3	1
LOCAL DISEASES.		
Headache	2	—
Insomnia	1	—
Diseases of the Eye :—Presbyopia	1	—
Foreign body	1	—
Diseases of the Ear	2	—
Diseases of the Nose :—Coryza	4	—
Circulatory System :—Varicose Veins	1	—
Respiratory System :—Bronchitis	4	—
Pleurodynia	1	—
Digestive System :—Caries of teeth	2	1
Sore Throat	2	—
Dyspepsia	1	—
Diarrhœa	5	—
Hæmorrhoids	2	1
Carried forward.	40	5

TABLE VII.—OUT-PATIENTS.—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

FORT JOHNSTON EUROPEAN DISPENSARY—*Continued.*

Diseases.	Male.	Female.
Brought forward	40	5
INFECTIVE DISEASES—*Continued.*		
Diseases of the Skin :—Ulcers	3	—
Eczema	1	—
Psoriasis	1	—
Scabies	1	—
Impetigo Contagiosa	2	—
Sebaceous Sept	1	—
Dhobie Itch	1	—
INJURIES.		
Contusions	1	—
Wounds	2	—
Sprain	2	—
Abrasions	1	—
Insecta :—Tabanus bite (œdema)	—	1
Jigger	1	—
Total	57	6

FORT JOHNSTON MILITARY OUT-PATIENTS.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Dysentery	4	—
Enteric	1	—
Gonorrhœa	1	—
Malaria :—Aestivo-autumnal	5	—
Syphilis :—Primary	4	—
INTOXICATION.		
Rheumatism	4	—
Lumbago	1	—
LOCAL DISEASES.		
Nervous System :—Headache	1	—
Diseases of the Eye :—Conjunctivitis	1	—
Diseases of the Ear :—Inflammation	1	—
Diseases of the Nose :—Coryza	1	—
Diseases of the Circulatory System :—	3	—
Respiratory System :—Bronchitis	1	—
Pleurisy	1	—
Digestive System :—Diarrhœa	8	—
Constipation	1	—
Alveolar Abscess	1	—
Generative Sysem :—Orchitis	1	—
Organs of Locomotion :—Flat Foot	1	—
Diseases of the Skin :—Ulcers	5	—
Injuries—General Local	7	—
Tænia Solium	1	—
Total	54	—

TABLE VII.—OUT-PATIENTS.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

NATIVE TROOPS, ZOMBA.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Chicken-pox	1	—
Dysentery	23	—
Gonorrhœa	1	—
Malaria—Tertian	29	—
Rheumatism	246	—
Whooping Cough	1	—
GENERAL DISEASES.		
Anæmia	1	—
Mumps	1	—
LOCAL DISEASES.		
Nervous System—Neuralgia	112	—
Eye—Conjunctivitis	67	—
Ulceration of Cornea	2	—
Ear—Inflammation	20	—
Respiratory System—Pleurisy	6	—
Digestive System—Stomatitis	9	—
Caries of teeth	32	—
Gumboil	1	—
Sore Throat	3	—
Diarrhœa	254	—
Constipation	151	—
Colic	4	—
Organs of Locomotion—Myasitis	5	—
Connective Tissue—Cellulitis	36	—
Abscess	25	—
Skin—Eczema	4	—
Boil	70	—
Tinea	1	—
Scabies	135	—
Prickly Heat	2	—
Ulcer	333	—
INJURIES.		
Local	336	—
ANIMAL PARASITES.		
Urinary Bilharzia	1	—
Ankylostomiasis	2	—
Total	1,915	—

TABLE VII.—OUT-PATIENTS—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

ZOMBA NATIVE DISPENSARY.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Dysentery	52	4
Gonorrhœa	2	—
Malaria :—Tertian	33	8
Rheumatism	19	7
Syphilis :—Secondary	2	—
Whooping Cough	—	2
Yaws	3	—
LOCAL DISEASES.		
Nervous System :—Neuralgia	44	—
Diseases of the Eye :—Conjunctivitis	65	8
Opacity	1	—
Diseases of the Ear :—Inflammation	34	12
Other Diseases	11	—
Respiratory System :—Bronchitis	204	26
Digestive System :—Stomatitis	1	—
Caries of teeth	94	40
Sore Throat	13	—
Dyspepsia	21	—
Diarrhœa	219	25
Constipation	211	25
Hepatitis—Acute	1	—
Lymphatic System :—Inflammation of Lymphatic Gland	10	—
Generative System :—Orchitis	1	—
Female Organs :—Mastitis	—	1
Connective Tissue :—Cellulitis	6	—
Abscess	5	—
Diseases of the Skin :—Eczema	1	—
Boil	49	3
Herpes	2	—
Tinea	6	2
Scabies	654	80
Ulcer	208	35
INJURIES.		
Local	552	36
POISONS.		
Snake bite	1	—
ANIMAL PARASITES.		
Urinary Bilharzia	5	—
Dracunculus	6	1
Total	2,526	315

TABLE VII.—OUT-PATIENTS.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

CENTRAL PRISON, ZOMBA.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Chicken-pox	13	—
Dysentery	9	—
Malaria :—Tertian	12	—
Rheumatism	150	—
GENERAL DISEASES.		
Anæmia	1	—
LOCAL DISEASES.		
Neuralgia	64	—
Diseases of the Eye :—Conjunctivitis	13	—
Optic Neuritis	2	—
Diseases of the Ear :—Inflammation	15	—
Respiratory System :—Bronchitis	184	—
Digestive System :—Stomatitis	2	—
Caries of teeth	15	—
Sore Throat	4	—
Inflammation of Tonsils	1	—
Dyspepsia	2	—
Diarrhœa	180	—
Constipation	73	—
Generative System :—Orchitis	1	—
Organs of Locomotion :—Myasitis	1	—
Connective Tissue :—Cellulitis	23	—
Abscess	4	—
Diseases of the Skin :—Urticaria	1	—
Eczema	10	—
Boil	16	—
Scabies	133	—
Ulcer	116	—
INJURIES.		
Local	309	—
Total	1,354	—

FORT JOHNSTON NATIVE DISPENSARY.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Beri-Beri	2	—
Chicken-pox	1	1
Dysentery	42	1
Erysipelas	1	—
Gonorrhœa	4	—
Carried forward	50	2

Table VII.—Out-Patients.—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1915.

Fort Johnston Native Dispensary.—*Continued.*

Diseases.	Male.	Female.
Brought forward.	50	2
Infective Diseases.—*Continued.*		
Leprosy—Nodular	3	—
Anæsthetic	1	—
Malaria—Aestivo-autumnal	52	4
Chronic Malaria	22	3
Pellagra	1	1
Pneumonia	3	—
Relapsing Fever	1	—
Mumps	3	—
Syphilis—Primary	1	—
Secondary	1	—
Inherited	1	—
Whooping Cough	1	1
Yaws	2	2
Intoxications.		
Rheumatism	47	2
Lumbago	27	—
General Diseases.		
Debility	1	—
Local Diseases.		
Nervous System—Paralysis Agitans (acute)	1	—
Neuralgia	3	—
Headache	51	2
Mental Diseases—Delusional Insanity	1	—
Diseases of the Eye—Conjunctivitis	26	7
Hypermetropia	1	—
Diseases of the Ear—Inflammation	10	3
Other Diseases	2	—
Circulatory System :—Palpitation	1	—
Respiratory System :—Bronchitis	77	3
Emphysema	1	—
Pleurodynia	6	—
Digestive System :—Caries of teeth	41	7
Enteritis	6	—
Diarrhœa	57	1
Constipation	106	10
Colic	17	1
Cancer of tongue	—	1
Urinary System :—Renal Colic	1	—
Hæmaturia	4	—
Diseases of the Male Organs :—Inflammation of Scrotum	3	—
Impotence	1	—
Female Organs :—Delayed Labour	—	1
Diseases of the Organs of Locomotion :—Arthritis	4	—
Teno-synovitis	5	—
Diseases of Connective Tissue :—Cellulitis	7	1
Abscess	12	2
Whitlow	7	—
Oedema of legs	1	—
Carried forward.	669	54

TABLE VII.—OUT-PATIENTS.—*Continued.*

RETURN OF DISEASES (OUT PATIENTS) FOR THE YEAR 1915.

FORT JOHNSTON NATIVE DISPENSARY.—*Continued.*

Diseases.	Male.	Female.
Brought forward.	669	54
LOCAL DISEASES.—*Continued.*		
Diseases of the Skin :—Eczema ...	14	2
Boil ...	17	3
Herpes ...	2	—
Scabies ...	177	17
Ulcers ...	247	23
Impetigo contagiosa ...	2	—
INJURIES.		
Local Fractured radius ...	1	—
,, Finger ...	1	—
Contusions ...	3	—
Sprains ...	3	—
Wounds ...	137	12
TUMOURS.		
Parotid gland ...	1	—
POISON.		
Scorpion sting ...	1	—
ANIMAL PARASITES.		
Insecta :—Unclassed ...	1 (died)	—
Total ...	1,276	111

CENTRAL LUNATIC ASYLUM, ZOMBA.

The health of the lunatics has been very good.

When possible they are employed on light tasks, such as gardening, house thatching, etc.

Four of the new cells have been opened, but owing to the war the remaining extension of this asylum has not yet been completed.

Type of Insanity.	Remaining in Asylum at end of 1914.	Year Total.		Total Cases Treated.	Remaining in Asylum at end of 1915	Remarks.
		Admissions.	Deaths.			
Mania ...	11	1	—	12	12	
Melancholia ...	4	—	—	4	4	1 Female.
Delusional ...	10	5	—	15	15	
Circular ...	1	—	—	1	1	
Dementia ...	3	—	—	3	3	

SLEEPING SICKNESS INVESTIGATIONS, DOWA DISTRICT, 1915.

Sleeping Sickness Investigations have now been carried on for somewhat more than 7 years. During this time, six Medical Officers, before myself, have been engaged in the work. Only one of them remains in the service, 4 having resigned at the end of their first term of service, and one obtained a transfer to East Africa. So many changes of Staff make it hazardous to draw conclusions as to variations in the prevalence of the disease, or the efficiency of the measures adopted to diminish it. It must suffice to say that there is no evidence of marked increase or decrease

During the year, 107 days were spent travelling in the Area searching for cases and visiting those diagnosed from bloodfilms sent up by the Sick Reporters ; no cases were discovered by the former method, and for reasons which I have detailed in other reports, it is of little use. Twenty-five cases have been diagnosed, one of which, to be referred to again below, is open to some doubt.

736 stained films, from 395 persons reported sick, have been examined ; a certain number of fresh blood examinations have also been made ; from these, 53 cases of Malaria have been diagnosed, 9 of Spirochaetosis and 25, as already mentioned, of Trypanosomiasis.

Of the 25 cases of Trypanosomiasis, 13 were males and 12 females ; all were adults. During the last three months of the year, eight females to one male was the proportion, which is, perhaps, to be explained by the exposure of the former to infection while hoeing their gardens in preparation for the coming rains.

The following Table shews the monthly incidence :—

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug	Sept.	Oct.	Nov.	Dec.
0	0	3	2	3	2	4	1	1	1	1	1

As regards locality, the cases have been well distributed. Ten have been found in villages on the Lake-shore, viz :—Makho 1. Chiunda 1. Kuluunda 2. Mangire 1 Chindungwa 2. Kabumba 2. Manganga 1.

Seven have been found in villages along the Lipimbi River, viz:-- Chimonjo 1. 1. Sombe 1. Mtalimanja 2. Nkombedza 1. Chikuni 1. Mlezi 1. Only one has been found along the Lintipe and Lilongwe Rivers—Chinsamba 1.

The remaining seven have been found in villages lying at the foot hills, between the Lipimbi and Lintipe Rivers :—Kabwabwa 1. Kanzimbi 1. Gwende 1. Matumba 2. Kaya 1. Namachete 1. During December there seems to have been a little epidemic of cases in persons who have been busily engaged in making gardens in the notoriously fly-infested district about Ntondo village.

In one or two instances it has been possible to trace some connection between cases. Thus the two cases at Chindungwa were man and wife ; the case at Maganga was the uncle of a case at the neighbouring village of Kabumba, and the latter came, while sick, to visit his uncle, staying two days in his hut ; soon afterwards the former was seized with his illness. Such instances have aroused a suspicion that infection may, sometimes at any rate, be conveyed by other means than the fly.

In the eight cases in which enquiries were made on the subject it was found that seven were Angoni, and one a Mang'anja ; all of them had either always lived in the Sleeping Sickness Area , or had resided there for a long period.

In no case, with one doubtful exception, did the history point to infection having been acquired outside the limits of the Sleeping Sickness Area.

Symptomatology. Sixteen of the cases have been examined, mostly on one occasion only, so that no very careful observations on this subject can be recorded.

Headache was complained of in 10 cases ; it is usually temporal. Abdominal pain, with or without diarrhœa, backache, cough and pain in the eyes or limbs are frequently mentioned. Emaciation was absent in 3, slight in 6, moderate in 2, and marked in 4 (one of these very marked).

Rash : No rash was observed in any case, but a dry scaly condition of the skin, partly due to not washing, was seen in many cases.

Oedema was absent in seven cases and present in eight. In several cases the oedema was very considerable ; one case had marked ascites. Large areas of alopecia had developed in one case.

Six cases had pyrexia exceeding 100.0 when examined, and 10 had a temperature below this level.

In twelve cases the pulse rate was over 90, and in 4 under this.

Glands : In 10 cases palpable glands were found in the neck, and in 5 in the epitrochlear regions ; in the other cases no palpable glands were found in either of these situations.

In one case only was the spleen palpable ; no enlargement of the liver was made out in any case,

In three cases systolic murmers, probably haemic, were heard. In 10 out of 12 cases, in which a note was made on the point, tremor was observed.

In three cases the speech was slow and blurred ; two cases were aphasic when seen.

In one case there was marked rigidity of the neck ; one had paraplegia ; one had marked photophobia, with a steamy cornea and dilated immobile pupil ; one woman had had a miscarriage.

In two cases an estimation of the Haemoglobin content of the blood was made, the readings being 40% and 50% ; a red blood count was made in these two cases with a finding of 1,950,000 and 4,235,000 per c.m. respectively. A red blood cell count was also made in another case, the reading being 3,390,000. After an experience in which all the apparatus was blown away or upset by a sudden storm, it was decided that a native village was not the place for delicate observations of this nature ; with a suitable tent they might be possible.

In 5 cases no Trypanosomes could be found in the blood, when examined fresh, although they had been previously found in stained films.

One case, Sapitidwa of Kabwabwa, is of considerable interest. This person is an elderly woman who had, in March last, headache and malaise for three days, on one of which (March 23) her blood was taken by a Sick Reporter. Examined while away travelling, the film was entered as negative but, on re-examination later, one Trypanosome was found, and, after a long search, a second. Meanwhile she was reported to have recovered, and when visited appeared to be in good health ; examination of fresh blood was negative. She has been visited many times since, and her blood examined repeatedly, with a negative result on all occasions. Recently, 1 c.c. of her blood was inoculated into a monkey which was negative on December 31—the eighth day of the experiment. The diagnosis rests on the blood film made by the Sick Reporter and most careful enquiries have not discovered any source of error. This, then, appears to be a case of spontaneous recovery. It is unfortunate that monkeys for inoculation were not available earlier ; a guinea pig and a rabbit were inoculated in July with some of her blood, but did not become infected.

With the exception of this case, and of seven others diagnosed in the last two months of the year, all the cases have already terminated fatally.

Tsetse-fly. On this subject there is little to be said. It seems to me to remain within its former limits, which vary considerably with the season of the year. There are also marked diurnal variations; thus one day one may travel from Mvera to Domira Bay without seeing more than two or three, and, on the next, they may be numerous during the same hours of the day.

Clearing. No extension of clearing has been made during the year, and the results on the Domira Bay road point to the necessity of a reconsideration of the methods hitherto employed. It has, I think, become evident that through clearing with removal of the stumps is required to achieve any definite results. The most successful effort is to be seen along the Lipimbi River, where, from Mtalimanja to Msosa, the country is one enormous maize garden and it is very exceptional to see a single tsetse fly in traversing that region; a very large population has congregated along the River.

Owing to the poverty of the soill and scanty rainfal there has been a considerable migration of people from Kaya, Gwende, and that neighbourhood, to the lake shore. This appears to me to deserve encouragement, as the people are thereby removed from fly areas. On the other hand, owing to overcrowding, a number of people whose villages are along the Lipimbi, have had to seek garden sites in Nyansato, with the result that, as already mentioned, quite a little epidemic of cases has occurred amongst them.

Game is plentiful in the Sleeping Sickness Area, and I have seen little evidence that the people go in for hunting anything but the smaller animals such as duiker. Elephants, from all accounts, seem to be increasing and do a considerable amount of damage to native crops.

RESEARCH.

At the end of September, 1915, permission to initiate some experimental research was received and arrangements were at once made to procure monkeys and to provide accommodation and food for them. The ordinary Sleeping Sickness work, except for some curtailment of the amount of travelling, and the customary medical duties have been carried on.

The lines of research to be followed were :—

(1). Examination of healthy natives of the Sleeping Sickness Area, by inoculation of their blood into monkeys, and by blood film examination, for Trypanosome carriers. By the end of the year, 25 such examinations, of which 10 were completed, had been made; the results were negative.

(2) Attempts to transmit T. rhodesiense by biting insects other than G. morsitans.

An experiment with Cimex rotundatus was started on November 18 by feeding 84 bugs on a monkey infected from a case of Sleeping Sickness. Feeding on clean monkeys was commenced on November 23 and is being continued; the result so far is negative.

(3) Examination of the blood of predatory birds for Trypanosomes, especially T rhodesiense.

The blood of 5 large brown kites has been examined. The results have been negative.

(4). Investigation of the blood changes in Human Trypanosomiasis; no work has so far been done on this subject.

EXAMINATION OF THE BLOOD OF WILD GAME SHOT IN THE FREE SHOOTING AREA OF NGARA SUB-DISTRICT.

Blood films of 25 head, as shewn in the Table below, have been examined.

Species	No. examined	No. in which Typanosomes were found.	No. in which no Trypanosomes were found.
Buffalo	3	0	3
Eland	2	2	0
Elephant	1	0	1
Hartebeeste ...	5	0	5
Puku	2	0	2
Reedbuck	1	0	1
Rhinoceros	1	0	1
Roan	4	2	2
Sable	1	0	1
Warthog	2	0	2
Waterbuck	1	0	1
Zebra	2	0	2
	25	4	21

Percentage infected:— 16.
Species of Trypanosome believed to have been found :—
T. rhodesiense :— 1 (eland)
T. congolense :— 3 (eland 1, roan 2)

It is noteworthy that the Royal Society's Commission examined a number of blood films of Wild game shot on the border of the Free Shooting Area, which was at that time believed to be fly-free, without finding any pathogenic Trypanosomes. Tsetse fly has only been reported there since that time.

(Signed) J. B. Davey,
Medical Officer.
Sleeping Sickness Investigations.

YAWS IN THE SLEEPING SICKNESS AREA, DOWA DISTRICT.

The population of the Sleeping Sickness Area consists of Angoni, Amang'anja, Yao and a few Chikunda ; for the most part these live in separate villages, but there are a number of villages with both Angoni and Yao inhabitants. The inhabitants of 20 villages, taken at random in various parts of the Area, were examined. The examination, as in the Dedza District, consisted of inspection of the hands, forearm, arms, axillae, neck and feet ; when any suspicious signs were found a further careful examination of the body was made. The person was then questioned as to an attack of Yaws. With few exceptions, the persons examined were Angoni ; very many of them have migrated from the hills about Mvera within the last 20 years. No recent cases of Yaws were seen in these 20 villages, but some few have been seen in others where no systematic examination has been carried out.

The following Table shews the result of the examination :—

	Men	Women	Total Adults	Children.
No. examined	286	466	752	203
No. of recent cases	0	0	0	0
No. of old cases	15	21	36	6
Percentage affected	5.24	4.51	4.79	2.96
Doubtful cases (not included above)	1	1	2	0

In Dedza the percentages of old cases were 16.6 and 16.55 for men and women, respectively, but *of Angoni only*, 4.92 and 4·57 very nearly the same as those found in the Sleeping Sickness Area. It would appear that, for some reason, Angoni are less liable to the disease than the other people.

Juxta-articular nodules were found on 1 man and 4 women, i.e. in 13.19 % of the old cases ; in Dedza in 80 out of 394, i.e. 20.3% One of the cases with these nodules denied infection, but typical scars were present. In 3 of the five cases they were on the subcutaneous border of the ulna, and in 2 on the great trochanter of the femur in the usual sites. One of my Sleeping Sickness cases had a typical nodule on the spine of the Right Scapula and gave a history of Yaws when a child ; he is not included in the above figures.

The usual sequelae of the disease were observed ; a very good example of "Pitted Palms" was seen (photo attached); it is difficult to reproduce this condition satisfactorily in a photograph but is very striking when seen. A beautiful example of the dry, papery skin condition of the hands and wrists was also found ; the back of the hand, with the exception of its ulna border, seems to be spared in these cases ; it ends abruptly about 2 inches above the wrist.

The small number of cases amongst children would seem to indicate that the disease has not obtained much of a hold in the Sleeping Sickness Area ; most of the adults, moreover, who had suffered, stated that they were infected in infancy, when living in the hills.

(Signed) J. B. Davey,
Medical officer.

MALARIA IN NATIVE CHILDREN IN MLANJE DISTRICT.

In January, 1914, in the course of vaccination operations in Mlanje District, blood films from 135 native children were made and the children examined for splenic enlargement. The ages also of these children were estimated. The villages from which the children were drawn are all in proximity to the Government station. Three defective films had to be discarded, leaving 132 ; the results of the examination of these 132 children are given below.

TABLE 1.

Shewing the numbers of children examined, grouped according to age.

Age	0—1	1—2	2—3	3—4	4—5	5—6	6—7	7—8	8—9	Total
No. examined	29	21	25	14	16	15	8	3	1	132

Table 2.

Shewing the numbers, at each year of age, in whose blood malarial parasites were found.

Age	0—1	1—2	2—3	3—4	4—5	5—6	6—7	7—8	8—9	Total
Parasites ...	14	14	25	12	13	12	7	2	1	100

TABLE 3.

Shewing the numbers, at each year of age, with palpable spleens.

Age	0—1	1—2	2—3	3—4	4—5	5—6	6—7	7—8	8—9	Total
Spleens ...	12	12	19	11	7	4	1	0	1	67

TABLE 4. Shews the percentage of those examined in whose blood parasites were found and in whom the spleen was palpable, arranged in years of age; it further shews the percentage in whom crescents were found.

TABLE 4.

Age	0—1	1—2	2—3	3—4	4—5	5—6
Parasites found. %	51.7	66.6	100	85.7	81.2	80.0
Crescents found. %	13.8	9.5	32.0	21.4	18.7	13.3
Spleen rate	41.4	57.1	76.0	78.5	43.7	26.7

From these tables we see that, of the total children examined, 100 (or 75.75 %) shewed parasites, and 23 (or 17.4%) crescents in the blood; and 55 (or 41.7%) had palpable spleens; that the age at which infection is most prevalent is 2—3 (100%), and that the spleen rate closely follows, but is lower than, the infection rate. The close connection between splenic enlargement and malarial infection is borne out by the following table:—

TABLE 5.

Age	Parasites in blood & spleen palpable.	Parasites in blood : spleen not palpable.	No parasites in blood : spleen palpable.	No parasites in blood : spleen not palpable.
0—1	11	4	1	13
1—2	12	2	0	7
2—3	19	6	0	0
3—4	10	2	1	1
4—5	6	7	1	2
5—6	4	8	0	3
6—7	1	6	0	1
7—8	0	2	0	1
8—9	1	0	0	0
Total	64	37	3	28

In only 6 cases was the splenic enlargement great; of these the spleen reached the iliac crest in 4, and the umbilicus in 2. The species of parasite found I believe to be the subtertian in every case, but further investigation on this point is necessary. A feature of much interest, should this supposition be correct, was the frequency with which the segmenting and presegmenting forms of the schizont and the various stages of developing gamete were observed. The descriptions given of these forms of the subtertian parasite are so unsatisfactory that there is some difficulty in identifying them; authors usually content themselves with a remark to the effect that such forms are rarely found in the peripheral blood.

(Signed) J. B. DAVEY,
Medical Officer.

NOTES ON TWO DISEASES OBSERVED IN KARONGA DURING THE PERIOD 1914/1916.

Shortly after my arrival in Karonga in April, 1914, a woman consulted me with signs and symptoms of a disease I had never seen before. Since then I have seen numerous cases of the same type. I was able to keep in touch with the woman until I left Karonga in July, 1916, and as her case is characteristic I shall give my notes of it in full. Elizabeth, aged about 30, married with two children, was first seen in May, 1914. She had married a second time, a year before, had had no child by her second husband, and wished medicine to produce one. Nothing abnormal was found on viginal examination. But the abdomen was nearly filled by enormously enlarged liver and spleen. The photograph gives a picture of their size a year later. When I first saw her, liver and spleen were even larger. The spleen then came to within an inch of Poupart's ligament. Blood examination, frequently repeated since, has never shown parasites, although the blood elements, to be referred to later, are abnormal. The stools contained scanty ankylostome ova. After one course of treatment I could never again find any. Most people in Elizabeth's neighbourhood harbour a few ankylostomes. Her illness was certainly not due to them.

The patient had walked three miles to see me, and, though she did not feel strong, had kept at work both in house and field. Vague symptoms had begun, insidiously, about a year before. (In such a place as Karonga the time of onset of a disease is rarely recognised. Sub acute infections are so frequent, and chronic infections, fevers, dysenteries, diarrhœa are so universal that a degree of illhealth is scarcely considered abnormal.) Elizabeth's symptoms were irregular chills, flushes and sweats, progressive weakness and shortness of breath, and progressive abdominal distension.

Beyond enlargement of liver and spleen there were few physical signs. The abdominal wall was extremely flaccid and thin, permitting the hand to dip underneath liver and spleen and to feel the gall bladder and the outline of the colon. Mucous membranes were pale and livid. During May and June, 1914, her morning temperatures, when I had opportunity to take them, were between 96° and 100°, and her evening temperatures, between 98° and 103°. I gave full doses of quinine, and, later, arsenic, without effect.

I went to Kota in July and returned to Karonga with the Field Force in August. In September Elizabeth came to me with the news that she was pregnant. She seemed a little better and believed her pregnancy due to my treatment. In the seventh month of pregnancy she was dangerously ill with amoebic dysentery. But the child was born at full term, quickly, without interference and without maternal complication. The child was suckled by the mother, has been healthy—but for several attacks of malaria and one of dysentery (few infants escape either in these parts),—shows no sign of her mother's disease, and in July, 1916, was fourteen months old, and alive and well.

During these two years I have seen Elizabeth frequently. Her abdominal condition shows no temporary variations. I have been unable to take daily temperatures, but she has pretty constant irregular fever. Her evening temperature is rarely normal. Twice she has taken 30 grains of quinine daily for more than a week without effect. I have never found a single parasite in at least twenty examinations. Arsenic by the mouth and soamin intramuscularly had no observable effect. During the two years there has been irregular but perceptible improvement in health The lower edge of the spleen has retreated about three inches and the liver edge, at one time four inches beyond the costal margin, is now only two inches beyond it.

During my stay in Karonga I have had five cases of Elizabeth's disease in Hospital and have seen scores of cases among outpatients. I shall now give a summary of the distribution of the disease and of its signs and symptoms, and conclude the account by a description of the only case I have been able to watch from the onset of symptoms.

The disease is one of later childhood, adolescence and early middle age. I have not seen a case in an infant nor in any one over forty. Cases have come to me from all round Karonga, but there is a special focus of the disease in the villages on the banks of the Rukuru I collected over a dozen cases in children aged 5-15, from within a half mile radius, two miles up the Rukuru from Karonga. So far as I can judge, most cases die. I know of no death in under two years from the onset of symptoms. I have seen several cases which I believed to be certain to recover, Elizabeth's being one. One boy, with the usual enormous liver and spleen has been constantly at work in the Regimental Store of the K.A.R. for the last eighteen months.

Onset seems to be generally insidious. Some histories suggest that real onset is preceded by several ephemeral attacks of fever. Throughout the course of the disease fever is almost constant, with morning remissions. weakness, anaemia, and abdominal enlargement come slowly. When fully developed the enlargement is very characteristic, especially in children. Lower ribs and upper abdomen bulge out on both sides, allowing cases to be picked out by the eye in a crowd of naked villagers. Natives call the disease " wenku " (kinkonde) meaning spleen. They confuse it with malaria but say that when the lump is on the right as well as on the left side of the abdomen the case will probably die. They say that all children who get the very swollen abdomen eventually die. They believe that the disease has been introduced since the arrival of Europeans to the country.

The liver is not always enlarged. I have seen both advanced and early cases with no liver enlargement. But when splenic enlargement is not excessive, and when it is not accompanied by hepatic enlargement, it is impossible, without repeated blood examinations, and without watching the results of quinine, to be sure cases are not malaria. I am, however, certain that many of the cases even of moderate splenic enlargement are not malarial. In one village, out of 69 children, 67 had enlarged spleens. Of the infants none had markedly enlarged livers. The eight children with enlarged livers were all over four years old. In other nine the degree and direction of splenic enlargement were against the diagnosis of malaria. Malarial spleens that I have seen rarely pass far beyond the umbilicus In this disease enlargements of liver and spleen are characteristic in shape and direction. The spleen (vide photographs) enlarge in the direction of the spine of the ilium—I have in two cases been unable to get my fingers between spleen and Poupart's ligament. The liver while enlarged in all directions is often most prominent near the middle line. The left lobe is then separately palpable and often makes a special prominence below the xiphoid, visible to the eye. (My only two photographs unfortunately do not show that special feature). These directions of the enlarged organs are, I presume, due to their pressure upon one another. Both liver and spleen are usually firm and smooth on palpation. But in one case, convalescent when I saw him, both organs were remarkably hard. The spleen, which extended to 4 inches beyond the ribs, was smooth. The liver, felt $2\frac{1}{2}$ inches beyond the ribs, was very hard and apparently entirely composed of nodules. This man complained of liver pain, the only case I have seen who did. He had a history of many years' illness but said he had recovered, and, except for his abdominal condition, looked and was perfectly well.

A thin and flaccid abdominal wall is a notable feature of the disease. Peristalsis is often visible. Attachments of liver and spleen are so loose as to permit both to move forwards and downwards in the erect as contrasted with the recumbent posture. In the case of the spleen the edge may thus move as much as four inches.

Many children with the disease get very thin, but adults are always well covered. General oedema develops for some time before death. None of my cases died in Hospital so I have been able to do no post-mortem examinations.

The disease has a characteristic and very uniform blood picture. No parasites beyond once, a filarial embryo, and several times a malarial ring, have ever been seen. I once punctured a spleen, twice punctured a liver, and twice examined the fluid of a blister without finding anything recognisable as Leishman's bodies. Eight examinations of Elizabeth's blood, extending over two years, gave the following variations.

Large mononuclears varied from 31% to 49%
Lymphocytes ,, ,, 9% to 20%
Eosinophiles ,, ,, 0% to 10%
Polymorphs ,, ,, 32% to 46%

Many of the polymorphs were immature. The smallest proportion of large mononuclears and the largest of polymorphs were seen just after the birth of the child. The child's blood was twice examined. Once the large mononuclears were 22% Subtertian rings were then present. A month later they were 12%. I have seen no case of the disease where the large mononuclear count was under 27%. Many of these are always of large lymphocyte type, some very large, with scanty deeply staining cytoplasm. Cells of that type, in these cases, so grade into ordinary hyaline mononuclears as to make distinction difficult. A degree of lymphocytosia is always present. I have been unable to do estimations of red and white cells, or of haemoglobin. (I enclose blood smears from different cases of the disease). Among members of the Field Force, which, until late in 1915, had an average enlisted strength of over a thousand men, one case of the disease occurred. That other cases occurred and were missed is quite impossible. This man, Moffat, a stretcher bearer, came from Zomba with the troops in August, 1914, and was practically resident in Zomba until he took ill in July, 1915. He was admitted to Hospital on July 14th, on the fifth day of his absence from work, although he had been feeling unwell for months previously. The character of the fever can be seen from the temperature chart, which I enclose. On admission the spleen was just palpable. For the first month the temperature was 103° to 105° in the evenings, 99° to 103° in the mornings, pulse rate 90-100. There were some bone pains. There was no albuminuria. The chest was, and remained, clear. The spleen continued to enlarge, and in November, three months after admission, was at its maximum, the edge an inch above the umbilical level. The liver begun to enlarge early in August and reached its largest at the same time as the spleen, then extending from the fifth rib to $2\frac{1}{4}$ in. beyond the ribs in the nipple line, curving thence slightly downwards to the middle line. At that time lower chest and upper abdomen were markedly distended. When he was sent home to Zomba in January the liver was undiminished in size. The spleen had slightly diminished. During October there was cardiac weakess with a faint first sound, a pulse rate of 110-130 and oedema of the legs. From August to November there was complaint of pain, in localised areas, mainly in the upper arms, less often in the thighs. These pains came and went as the evening temperature rose and fell, were referred to bone and lasted from one to five days in one place. The chart shows a very slow fall of temperature from the first month. During November it first reached normal, and the patient appeared to be making a final recovery, but the temperature rose again to 101° in the evenings. In December it was almost steadily normal but the fever returned during the fortnight before discharge on January 5th, 1916. In October there was slight albuminuria. There never were any abdominal symptoms and the tongue was clean throughout. By October the patient had lost much weight but never became emaciated, and before the temperature had reached normal was gaining weight rapidly, and, in spite of the persistence of hepatic and splenic enlargement, had got quite fat when he left Hospital. Except for one week in October the patient used to sit outside in the daytime, went by himself to the latrine some 20 yards away, and throughout the course of the illness the colour of mucous membranes was fairly well preserved. His blood counts were as follows :—

	Aug. 17.	Oct. 10.	Oct. 25.	Jan. 2, 1916.
Large mononuclears	30%	36%	44%	25%
Lymphocytes	19%	16%	19%	21%
Eosinophiles	5%	3%	2%	2%
Polymorphs	46%	44%	35%	52%

No malarial parasites were ever seen. Stool examinations for ova and amoebae were negative. I thought the case one of enteric at first. But Widal (dead cultures) was negative in August and October, and the clearness of the tongue, the absence of emaciation, the length of the course of the disease and the blood picture, to my mind, exclude the diagnosis of enteric.

I showed cases of the disease to all the Medical Officers with the Field Force at the time and they all recognised it as having uniform and specific characters. I owe the two photographs to Major Stannus, the Deputy Director of Medical Services, who also photographed many other cases which I showed him. One of the photographs I enclose is Elizabeth's. The other is of a rather early case.

In Castellani and Chalmers the disease is described as tropical splenomegaly. They describe two stages, in the earlier of which there is no hepatic enlargement. In many of my cases the liver enlarged together with the spleen. In some advanced cases hepatic enlargement was slight or absent. And in all, though there were frequently remissions and exacerbations of the disease before its course settled down to recovery or death, the characteristic signs did not vary. Accounts of the same disease have appeared in the Bulletin of Tropical Diseases. But in all the accounts I have seen the disease is referred to as being comparatively rarely met with. Around Karonga it is certainly common. Dr. Innes of Livingstonia recently showed me notes of what certainly were cases of the disease, seen when he lived in Karonga twelve years ago. He used to think them intractable malaria and his recollection of them is that they all eventually died All his cases were in adults.

The disease I have described I am sure I have never seen, in fifteen years of East Africa and Nyasaland, outside the North Nyasa district. The disease I am about to mention, although I know of no published account of it, I have seen before. I used to see isolated cases at intervals of years, wonder what they were, and forget them. I may define the disease as multiple non-suppurative swellings of connective tissue. The swellings may occur literally anywhere in connective tissue, inside joints, under periosteum, in muscle (the commonest site), or just under the skin. They may be single but are more often multiple. When multiple they may arise and resolve together, or they may succeed one another, often overlapping in point of time. Some of the first cases I saw suppurated. That result I now attribute to mistaken treatment, particularly the use of liniments or fomentations. After I confined treatment to the immobilizing of the affected part none of the swellings suppurated. I shall mention a few illustrative cases. In August, 1914, a porter came to the Dispensary at Karonga with a large, firm, rather diffuse and slightly tender swelling, which had begun to arise several days before, apparently situated under the fascia of the outer side of the thigh. I left it alone—it was not the first case I had recognised—and it disappeared in a few days In August, 1915, an askari was sent to Hospital with a swelling about the size of an egg over one of the lower ribs. It had been fomented for several days and, just before admission, had been punctured with a hypodermic needle. Pus was found and the case was sent to me for operation. For one day there was slight fever. I left the swelling alone, except for a bandage, and in nine days it had quite gone. As it was subsiding, another swelling developed in the right calf. That one rose and fell in six days. The patient was back to duty in fourteen days after admission.

A porter came to Hospital in September, 1914 with five swellings. Three were in arm muscles and one on the back of one of his shoulders. The fifth was in the left knee joint which was painful and greatly swollen. The patient would not let me use even a needle, so I tried Scott's dressing with the result that pus developed under the epidermis, which peeled off. On using simply a splint and cotton wool he improved for a time, but after moving about, as natives will, he got worse. The swelling was extreme, pain severe and he became febrile in the evenings. The Hospital was full of wounded at the time and we were trying to evacuate as many of the other patients as possible, so I sent this man by steamer to the Mission Hospital at Livingstonia. I learned later that after many weeks all the swellings finally subsided without suppuration.

The most chronic case I had was in a porter who was in Hospital for nine weeks. Both wrists and both ankles were swollen. The dorsum of one hand (for a week only), and an area of about six inches square in the lumbar muscles were also affected. For six weeks he lay perfectly helpless ; but for the swelling in the back one might have used the word rheumatism. He never had fever and the pain was never severe. Improvement when once begun was very rapid and on his discharge there was nothing to show but some stiffness of wrists and ankles. I have seen one fatal case. In June, 1916, when I was at Ngara a houseboy came to me with pain referred to the right hip. There was nothing to feel and nothing to see beyond slight lameness. The next day he was so lame as to be unable to walk, although there was still nothing visibly or palpably wrong, but on the previous evening he had developed a diffuse swelling over the left scapula. The pain there was slight. There was no local heat and no fever. I gave the boy Epsom salts and ten grains of aspirin to be taken later. When I went to see him the next morning I found he had died in the night. He had been choked by a swelling of pharynx and palate on both sides. The shoulder was still visibly swollen after death. I have seen no other case where the swelling occurred under mucous membrane. Natives know the desease and call it "vimba," which means swelling, but they call other diseases "vimba" too. They counter irritate, which does harm. The one essential of treatment is to immobilize. Active treatment is harmful, and the internal remedies I have tried, mercury, iodide, arsenic, sodium salicylate are useless. Pain is only considerable in some joint cases. A few cases have slight fever at first. My earlier cases I used sometimes to incise. When I got pus, as sometimes happened, smears showed no organisms. More often tissues were found simply oedematous. In one case there was fluid in a tendon sheath. I repeatedly punctured swellings with a hypodermic needle without finding any organisms. Once I dropped a few drops of blood from a swelling into a test tube containing sterilized broth. Nothing grew. The most natural theory of these cases is that they are due to an attenuated virus carried by the blood, a virus causing inflammation short of pus formation. For long I suspected they were filarial. I am now sure that they are not. I cannot profess to have examined the nocturnal blood of every case, but I examined the blood of most and only found embryos in one case, and they were scanty.

In November, 1915, during the routine stool examinations, I first saw an organism which I cannot find mentioned in Castellani and Chalmers. It is a monociliate organism, oval, about as long as the diameter of a red blood corpuscle, and so active as to prevent observation of structure before it dies. After death one or more vacuoles develop. It was unaffected by stains run on to the slide. In fixed and stained slides, specimens were only visible as faintly stained outlines not very distinct. They were so abundant in some stools, during November and December, 1915, that more than a dozen specimens were visible in a field of a $\frac{1}{6}$ in. lens. For the two months the parasite was common in stools. After the end of December they were rare. They were abundant in the stools of one European, a South African soldier with amoebic dysentery. When patients without dysentery had these parasites they always suffered from a chronic not very severe diarrhoea, they usually had from two to six loose frothy stools in the twenty four hours. I thought thymol did good but sometimes diarrhoea and parasites persisted for weeks. They all cleared up in time. I sent at least two men back to duty with these ciliated organisms still present in stools of practically normal consistency and they did not return to Hospital.

(*Signed*) NORMAN LEYS, M.B., D.P.H

APPENDIX A.

LABORATORY WORK.

By Dr. A. G. Eldred, Medical Officer, Zomba.

A total of 644 examinations has been made during the year, as follows:—

Blood films (including re-examination of same case) ...	306.
Fæces, for ova, etc	209.
Urine	32.
Sputa	19.
Material from ulcers, etc.	30.
Differential leucocyte counts	44.
Widal reactions	2.
Water analysis	1.
Total	644.

Analysis of blood films.

	Positive.	Negative.	Sub-tert.	Tert.	Quart.	Crescents found.
Native children	76	40	76	4	2	14
Native adults.	7	26	7	0	0	0
European children	3	8	3	0	0	0
,, adults.	29	34	29	0	0	0

With regard to the variety of parasite in native children: in all instances in which forms resembling benign tertian or quartan were found, sub-tertian forms were also present, sometimes in crescent stage, and it is I think possible that the apparently quartan forms, which were usually found in the sporulating stage, were actually instances of the sub-tertian cycle being completed in the peripheral blood.

The blood of several native children was examined twice daily for a week; in all cases malaria parasites were found, sometimes in large numbers, and including crescents and sporulating forms.

During the whole period the childrens' temperatures were taken at the time of taking each film, and were invariably normal or subnormal.

There was no perceptible enlargement of the spleen in any of these cases.

None of the cases shewed a definite cycle of development of the parasite, the various types, from youngest parasite to sporulating form, appeared in a haphazard manner; no quinine was administered during the period.

STOOL EXAMINATIONS.

Nothing of note—the usual run of Ankylostome, Ascaris and Bilharzia infections.

Amœba only found in one or two instances.

URINES.

One case, in a native, of urinary blastomycosis.

Specimens of urine collected in a sterilized flask shewed a typical yeast, in oval or globular form, reproducing by budding.

The urine was slightly cloudy, acid reaction, with a trace of albumen, no sugar.

The patient had complained of chronic pain in the right loin; he improved under treatment with urinary antiseptics, and later specimens shewed no yeasts.

SPUTA.

Tubercle bacilli found in two cases in natives.

Pneumococci frequently found, and spirochœtes are often found in the sputa of bronchitic and pneumonic cases, but not in large numbers, and are probably from a mouth infection and not cases of bronchial spirochœtosis.

DIFFERENTIAL LEUCOCYTE COUNTS.

Time has not permitted of these counts being done in many instances or in native cases.

In Europeans who have been any length of time in this country a large mononuclear increase was present in the great majority of cases.

In a European suffering from severe Ankylostome infection, the eosinophile count was 5% at the commencement of treatment, and rose to 21% during convalescence.

POST-MORTEM.

The following are of interest.

Case I :—A prisoner suddenly became ill with symptoms of acute meningitis, and died in less than 24 hours.

Post-mortem was done immediately after death.

Thorax and abdomen. Nothing of note.

Brain. Membranes thickened and adherent, pus in all the convolutions of cerebrum and extending to the cerebellum.

Adherent to the membranes, and lying in frontal portion of median fissure, on and not in the brain substance, was a sharp fragment of necrosed bone, triangular in shape, and about $\frac{3}{4}$ inch wide.

There were no signs of recent fracture of frontal bone, but there was evident thinning over site where fragment was lying.

The injury must have been inflicted at least 5 years before death, as the prisoner was admitted to the central prison in 1910, and there was no history of illness or injury since admission.

Smears of the pus shewed a large number of distinctly capsulated cocci, both free and in the pus cells.

These cocci were Gram fast, and probably pneumococci.

Case II. Body of a native adult brought in, said to have taken "Mwabvi" and died two days previously.

External. Body fairly well nourished, normal in appearance, no marks of violence.

Internal. Subcutaneous tissues normal on section, neither congested nor anæmic.

Stomach. Filled with a dark brown fluid material, sour smelling, and containing very minute ochre coloured granules, found on microscopical examination to be composed of vegetable material.

Mucous membrane of stomach intensely congested, dark purple in colour, and almost gangrenous in places.

This condition extended for a short distance along the small intestine.

Liver. Not enlarged but intensely congested.

Spleen. ,, ,, ,, ,,

Kidneys. ,, ,, ,, ,,

Lungs. Very intense congestion, dark purple and almost gangrenous, and oozing very black tarry blood on section.

Heart. Chambers full of black tarry blood, uncoagulated.

Microscopical examination of smears from the lungs and stomach revealed an enormous number of large bipolar staining bacilli.

These were probably decomposition bacilli and bore no relation to the cause of death.

The normal appearance of the subcutaneous tissues, contrasted with the intense congestion, approaching gangrene, of the internal organs, and the peculiar condition of the blood in the internal organs, were the principal features of this case, which was I think without doubt one of genuine " Mwabvi " poisoning.

APPENDIX B.

SALVARSAN IN SYPHILIS.

By Dr. R. Drummond, Medical Officer, Port Herald.

A total of 39 injections was given during the year 1915 to 17 cases.

Two natives with primary syphilis were each given three injections. Six months later there has been no recurrence.

In no case in which three injections were given have there been any further symptoms or signs.

Contrary to experience recorded in Journals I find Salvarsan useless in malaria, as seen by the following cases :—

Case (1). European, on railway construction, aged 35. Primary syphilis contracted three months ago. Had been in malarious districts for eighteen months, but as he took 5 grains quinine daily had not suffered from malaria. Received injection Salvarsan. 2 gm, and ten days later. 4 gm. Two days after the second injection he had a severe attack of tertian malaria. Parasites were numerous in the blood. He had not taken any quinine after the first injection.

Case (2). European, age 26. Severe secondary syphilis. Two days after second injection of. 4 gm. Salvarsan he had severe benign tertian malaria. From the time of the first injection, fifteen days before the malaria, he had not taken any quinine.

I therefore consider it advisable to insist on quinine prophylactic measures while treating syphilis with Salvarsan.

Unfortunately I have been unable to procure good fresh distilled water. 60% of the injections were followed by rigors, generally mild, but in four cases severe. These would appear to be attributable entirely to the nature of the water used.

In no case has it been necessary to expose a vein. All injections were intravenous, and in every case puncture of the vein was successful.

Salvarsan should not be the only treatment. Mercury, preferably by injection, should be used, and can be given in the intervals between the Salvarsan and continued at intervals for six months.

After one injection of Salvarsan it has been my experience that symptoms disappeared almost entirely. It is therefore well to insist that not less than three injections are of any avail. For this reason Salvarsan, by clearing symptoms, has been a danger in several cases which refused further treatment. Unfortunately in two such cases no further history is available. In one case, after one injection, recurrence took place six months later and was treated by a further three doses, and Mercury by injection.

The amount of saline used was 20 ounces.

Porget Meier Reaction in Syphilis. This reaction was tried in 16 cases—8 positive and 8 negative. In each case a positive and a negative control was used. All positive cases were subsequently proved to be infected according to the R. A. M. C. test or by demonstration of the spirochaete. It would appear to be a most useful test for practitioners in the tropics deprived of facilities for performing the Wassermann reaction.